This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

THE

SANITARIAN.

A MONTHLY MAGAZINE

DEVOTED TO THE

PRESERVATION OF HEALTH, MENTAL AND PHYSICAL CULTURE.

VOLUME XLIX., JULY TO DECEMBER, 1902.

A. N. BELL, A.M., M.D., Editor.

T. P. CORBALLY, A.M., M.D., HARRY KENT BELL, M.D., } Associate Editors.

BROOKLYN-NEW YORK, N. Y.: A. N. BELL.

1902

BOSTON MEDICAL
AUG 6 1903
LIBRARY.

Entered according to Act of Congress, A. D. 1902, by A. N. BELL, in the office of the Librarian of Congress, at Washington.

CATALOGUED
AUG 6 1903
E. H. B.

BOSTON MEDICAL
AUG 6 1903
LIBRARY.

THE SANITARIAN.

JULY, 1902.

NUMBER 392.

4389

COSMOPOLITAN HEALTH STUDIES.

By F. L. OSWALD, M.D.
Author of "Physical Education," "The Remedies of Nature," etc.

X.—CHINA.

During the last year of his consulate at the seaport of Trieste, Richard Burton, F.R.G.S., had an interview with the "modern Sinbad," Arminius Vambery, an indefatigable traveler of Hebrew parentage.

"Your accomplishments make me doubt the supremacy of the Caucasian race, Professor," said the courteous consul.

"No, no; our sun has set," sighed Sinbad. "There is no doubt that you have downed us," (meaning the Semites); "and it would be a horrible insult to both of us to more than mention the woolheads; but, since we are quite alone, I warn you that your people have not yet encountered their most formidable rivals. I must be much mistaken if you have not underrated the Mongols."

"Mongols," in that sense, probably included both the Japs and the Magyars, the two most rapidly progressive nations of the period. But even the Chinese state of affairs does not positively refute the shrewd traveler's conclusion, if we make allowance for the fact that China has for ages been subjected to the influence of two such delusions as Protection and Buddhism—the one tending to exclude regenerate competition, the other to depreciate the importance of health itself.

In the course of millenniums one of those curses would have sufficed to emasculate the manliest western nation, and their combination was a not altogether deserved misfortune. No Chinese wall can exclude moral epidemics, and about five hundred years before the beginning of our chronological era the doctrine of world-renunciation spread from the Ganges to the shores of the

Yang-tse-kiang and blighted the fairest flower of the Flowery Kingdom.

It was the passive and chronic manifestation of the same disease that infected southern Europe a thousand years later in an acute, but self-limited, form. Chinese Buddhism differed from the mania of our mediæval fanatics as consumption differs from pneumonia, or dry rot from a forest fire. The Mongol anti-naturalists waged no crusades, burned no witches and disbelievers, but in their submission to injustice, in the renunciation of their birthright to happiness, in their indifference to disease, in the suppression of their manlier instincts, in every abject form of self-denial, their bigots surpassed the most far-gone of their Caucasian fellow lunatics.

And, moreover, the contagion of the moral marasmus permeated the masses to a degree never approached, even in Spain. The converted Moor, toiling in the yoke of the Casa Santa, worked like a wolf, compelled to drudge at a treadmill, and yielding to force, but with restless vigilance watching for a chance of escape; the earth-renouncing Mongol works like a machine.

China alone has bred perfect slaves, unresisting and uncomplaining serfs of despotism, bipeds who will toil from sunrise to night without the hope of ever earning more than the quantum of rice and salt that will enable them to toil another day. In the slums of Hong Kong Dr. Alfred Thompson found sixty human beings huddled together in the dormitory of a sweat-shop manager, and breathing an atmosphere rivaling the effluvia of a sewer, without the redeeming chill of an underground vault. There was no attempt at ventilation, and the temperature, an hour after sunset, was at the fever-mark, and many of the poor hirelings moaned in their sleep, but the victims of insomnia sat brooding in stupid apathy; they had been taught that misery must be endured, and probably believed even in the moral advantages of physical wretchedness.

Their cursed creed paralyzes all efforts at reform; a South Mongol anti-naturalist cannot be persuaded to admit that nuisances need abolition: as long as they can possibly be supported the sufferer is so much nearer the goal of absolute deliverance from the love of earthly vanities, if they become unsupportable he can die, or, if he prefers, revolt just enough to re-establish a modus vivendi. In nine-tenths of the large cities the streets are unpaved, and the citizens breathe dust with the patience of an Egyptian camel; night-soil, by thousands of tons, is collected for

fertilizing purposes, without any attempt to mitigate odors that suggest Dante's experience at the cesspool of Malaggrio. The collecting carts jolt along the street with a dozen uncovered barrels, any one of them sufficient to rout an American tanyard dog, and four or five of those perfume vans can often be seen, or rather, heard and smelt—trundling in a row. Seeing, in the case of a foreign observer, is, indeed, often out of the question; an attack of vertigo, threatening a fainting fit, dims the eyesight, while the appeals to the olfactory nerves penetrate an eighteen inch brick wall. But the natives remain unmoved by such appeals. It's the street commissioners business, not theirs; and, besides, it may be good for the soul to mortify the physical senses.

A Brooklyn pet-dealer came near provoking a riot by importing a specimen of the Philippine hornbill, a bird with the head of a sea-monster and the voice of a foghorn; but in Canton scores of those vocalists are exhibited in front of provision stores for the special purpose of attracting attention, and often begin their sleep-murdering concerts an hour before sunrise. Nobody complains. The Brooklyn portent made the hackney horses across the street start as if an electric shock had passed along the line, and at daybreak waked sleepers for blocks around; but the Cantonese remember that there are worse evils, and that the affliction of interrupted slumber may help to hasten the advent of the sleep that knows no waking.

Apathy, bordering on the torpor of cretinism, may really become a blessing in circumstances of hopeless discomfort. Some of Bonaparte's relatives used to poke fun at M. de Tallyrand's power of self-control, which they described as being "so perfect that in the presence of his official superiors no feature of his face would indicate a symptom of surprise if somebody should suddenly kick him in the region of his coat-tails." Eastern China abounds with such stoics. A Chinese sausage vender will maintain his appearance of stolid indifference if an enraged customer should fling a dead cat in his shop; an unlicensed lodging-house keeper will only reach for a bribe if a police inspector of his back-rooms should discover an "auction harem."

It is a suggestive fact that in Buddhistified China the very tipplers prefer anæsthetics to exciting poisons. The Yoonan mountaineers, at the far west end of the enormous empire, fuddle with plum brandy, but the orthodox coast dwellers stick to opiates. Poppy-juice, in some modification or other, has soothed their nerves for a long series of centuries, and it would be a mistake to suppose

that the British intruders are responsible for the present development of the poison traffic. The fact seems to be that they merely enforced an import trade of a drug which the government had planned to put on its list of monopolies, and that, seeing the hopelessness of resistance, a committee of mandarins shrewdly contrived to saddle the Outlanders with the odium of thwarting a proposed reform.

The total suppression of the traffic would have been as impossible as a North American prohibition town. Mohammed Baber Khan, the founder of the great Mogul dynasty, tried something of the sort in northern Hindostan, and gave up the attempt with the slightly profane remark that "no mortal should try to be more omnipotent that Allah, who failed to keep snakes out of paradise."

When the public sale of the poison was interdicted, the dope fiends smuggled in poppy-gum under inscrutable disguises, in hollow nuts, in wax candles, under the wool of sheep and the feathers of birds, in boats that paddled up the Indus under cover of darkness, and were met mid-stream by expert swimmers. Rustics planted the prohibited herb in weed patches, in deep swamps, in the tangle of harmless looking hedges, and the only practical result of the jehade was a reduction of public revenues.

French missionaries who undertook to redeem Chinese villages by buying up and closing opium shops, were in danger of being lynched; the peasants who submitted to the grossest tyrannies of their native rulers declined to accept reform at the hands of strangers.

Health officers of the British treaty towns, too, have to travel a path of thorns. Innovation, *per se,* is a horror to the Chinese worshipper of established customs, and, with the aggravation of foreign endorsements, is sure to be attributed to scandalous motives. The South Mongols are clannish beyond the Arab degree of exclusiveness, but, somehow, slander mongery, the world over, travels in time-worn ruts, and the pig-tailed conservatives do not fail to trot out the usual charge of *cannibalism.*

The very name is a calumny, if its origin can be traced to the West Indies, where the Spaniards tried to justify their extermination of the warlike Caribs; but not a year passes without the same predilection being ascribed to Polish and Austrian Hebrews, to fanatical Kurds, and even to the Moorish refugees, who still maintain their independence in the mountains of Algeria. A Warsaw *kosher* shop was mobbed on the suspicion of mixing its mince-meat with a hash of Christian babies, and the Hong Kong

sensation mongers have not the slightest doubt that European charity hospitals smoke-dry the patients entrusted to their care, in order to use their brains and hearts for medical purposes. Health inspectors, they hint, spy out the approaches of Buddhist bedrooms to return after dark with a posse of ghouls. A good many of them, they fear, are disguised were-wolves, who object to garbage heaps only because the odor prevents them from tracking their victims by scent. What Caucasian civilization really amounts to, they say, may be inferred from the habits of the foreign sailors whose approach betrays itself in the dark for a block and a half.

And more than one traveler has, indeed, to admit the strange fact that the monstrously unsanitary condition of Chinese cities does not prevent the personal cleanliness, or at least tidiness, of the native population. Pig-tailed Pariahs are afflicted with hydrophobia in the literal sense of the word; they avoid the use of water wherever they can substitute a rough dry towel in the morning and tea at the breakfast table, but they contrive to keep their wardrobe in good order and their queues in nice trim. And the poorest of the poor observe certain forms of etiquette, at home, as well as in the presence of their social superiors. It may have something to do with the ceremonialism of their creed, but impresses Outlanders as a redeeming feature of the national character.

The very pirates of a Canton jailyard twisted their shackled hands to dust off their trowsers before they were marched off to execution.

What would the Bold Turpin care?

"He sang a song and danced it round,
Beneath the gallow tree."

—but, probably, also with a swaggering indifference to the defects of his toilet. And if Chinese peasants are too poor to buy toothbrushes, they use an equivalent by chewing sunflower seeds. The tough kernels of the *Helianthus cistus* form an excellent dentifrice, and the custom seems to have spread from China all the way to southern Russia, where the Mongol conquerors probably introduced it in the Middle Ages.

Fine teeth are not unusual in the rural districts, nor are pretty feet—the cultivation of pedal deformities being by no means a universal absurdity. It is a city freak, practiced here and there in the families of rich landed proprietors, but seems, on the whole, less prevalent than tight-lacing in western Europe.

In cold weather Caucasian fashion substitutes broadcloth for lighter fabrics; China adds linen to linen—a dozen tegments, if six fail to resist the blizzards from the uplands of the Mongol Steppe. And the saving is not limited to the difference in dry-goods bills. Five linen kirtles, of ten ounces apiece, are actually warmer than a twelve-pound overcoat; the warm air enclosed between the folds of the multiplex garments add to the protective efficiency of the aggregate, and the wearer's shoulders are relieved of a cumbersome burden.

Calorific food is getting scarce in the inland provinces, but near the coast prodigious quantities of seafood compensate the deficiencies of terra firma products. And the land owners of the coast slope would probably marvel at our neglect of fish culture. The experiments of famine-threatened generations have convinced their descendants that the same expenditure of food that would yield a dozen pounds of poultry will raise a hundred pounds of carp and eels—not to mention the diminished risk of raids on the kitchen garden, though certain varieties of pond eels are apt to leave their reservation to visit rice fields on moonlit nights.

And the cultivation of all stimulant plants (tea, poppy, tobacco, etc.), taken together does not deduct more than eighteen per cent. (to 68 in Cuba) from the total area of farmlands. Grim necessity, in that respect, prevails against all temptations; a population of 412,000,000 crowded together on a territory of a million square miles—not counting the western deserts—cannot help becoming anxiously utilitarian. Tobacco, by the way, is said to be almost unknown west of the lake region. In the seaport towns the nicotine habit has gained a permanent foothold, and about one-third of the demand is met by local sources of supply, the big-leaved plant being cultivated as a curiosum in many suburb gardens.

Chinese nostrum mongers would be glad if the scarcity of gingseng could be remedied in the same way. The name is a corruption of *gen-zeng,* "the Prince of Herbs," and there is hardly a remedial property which Mongol therapeutists have failed to attribute to the insipid root of the *Panax quinquefolium.* They have exhausted the tricks of horticulture to raise it in gardens, but the supposed panacea is a product of the woods, and declines to thrive in a farming region, a circumstance that has buttered the bread for thousands of our Allegheny highlanders.

The destruction of the East-Asiatic forests had made the plant so scarce that a hundred years ago the roots were sold at their

weight in gold. American imports have now reduced the price to about sixty cents an ounce, and revived the old superstition in all its extravagance. Analytical chemists hint that health seekers might as well swallow boiled bramble roots or bulrushes; but a dose of *gen seng* is the first idea in all pathological emergencies the Celestial Empire is heir to.

Bishop Butler's "tar-water craze" was probably suggested by Chinese traditions, a nostrum with a decided turpentine flavor being in great repute as a prophylactic, especially in the South provinces, where malaria is ripe in the dogdays.

Vaccination, or rather inoculation, may likewise be traced to Oriental precedents, like about everything else, from a mariner's compass to a world-renouncing monastery. More than a thousand years ago a Pekin Esculapius is said to have anticipated Dr. Jenner by the horrid method of pulverizing dried scabs collected in smallpox hospitals and blowing the powder into the nostrils of his patients, who must have failed to lynch him, if it is true that he celebrated his hundredth birthday at the summer palace of the Emperor.

Smallpox epidemics have repeatedly ravaged the eastern provinces within the last two hundred years, but never to the fearful degree of virulence reported from the Christian continent during the latter part of the Middle Ages. Cholera is an almost perennial scourge, as well as typhoid and a malignant form of dysentery attributed to the pollution of drinking water.

The death rate from consumption, however, is lower than anywhere in western Europe, or eastern North America, owing, probably, to a blessing in the disguise of a chronic fuel famine, that prevents the masses from passing half their lives in overheated stove-rooms, and thus gives each winter a chance to undo the mischief of the microbe-hatching summer.

And, perhaps, for the same reason infant mortality is, on the whole, not as excessive as foreigners might infer from the fact that infanticide (though by no means formally legalized) is silently tolerated, as a lesser evil than the portentous danger of further over-population. And, with one exception, the caprices of the sexual instinct are as completely ignored as dietetic aberrations. Rape is punished as a felony; the social evil, in all its forms, is left to work out its own abatement by the dread of its consequences: "Crainte de dieu et de la verôle," as the French venture to express it. Father Huc may have referred to Tibetan traditions in his allusion to a moral reformer who advised legis-

lators to exclude syphilis patients from the benefits of the public hospitals.

Hospitals, with trained nurses, certainly existed in China thousands of years before the Chalif Abdel Melik took his soul in his hand by endowing a lazarette for crippled soldiers, instead of leaving all the glory of their cure to Allah. Koobla Khan, the Charlemagne of the East, added free dispensaries in some of the larger cities; but probably drew the line at ginseng, the prince of plants and plant of princes.

Even at present, with a shipload of American supplements arriving every month in the year, the miraculous vegetable is so scarce in the West, that poor people would as soon think of asking for the herb of Paracelsus, that was known only to a few adepts, and could not be procured without the intercession of an ecclesiastic dignitary.

(*To be continued.*)

THE CHANCES OF LONG LIFE.

We should be afraid of the fear of death—not of death itself. If we follow this rule, there is no reason why we should not all become centenarians — so we are told in the "Revue d' Economie Politique" by M. Jean Finot. This author begins an article on the limitations of life by mentioning some traditional long lives. Among these cases are those of a resident of Goa, who is said to have reached his four-hundredth year in the enjoyment of all his intellectual faculties, a Scotchman who lived to be over 200 years old, and various Monks of Mont Athos who have reached 150 years. He asserts that Servian statistics for 1897 show three persons between 135 and 140 years old, 18 from 126 to 135, 123 from 115 to 125, and 290 from 105 to 115. In 1890 there were, he says, in the United States, 3,981 persons over 100 years old and 21 in London. M. Finot cites a mathematical formula, which he credits to Dr. Richardson, by which any one may get an idea of his probable length of life. It is only necessary to add the ages of one's father and mother to those of one's two grandfathers and two grandmothers, and the total divided by six indicates the exact number of years one should live. M. Finot does not believe that the average length of human life has been reduced. On the contrary, he believes that it is constantly increasing, owing to the

progress of hygiene. Why do we grow old at all? The writer answers:

"For three reasons: First, want of physical exercise in the open air; second, poisoning by microbes which the phagocytes have not succeeded in destroying; third, fear of death. It is hard to imagine the importance of this last element. If a man fears death, it will carry him away. And yet it is quite pleasant to; no sensation could be compared to it."

To prove this assertion, M. Finot quotes Heim, who related the sensations he experienced while falling with his companions from the summit of one of the Alps to a death which he miraculously escaped:

"At first a sense of beatitude, then complete insensibility to touch and pain; finally an extreme rapidity of thought and of imagination which in a few seconds enabled him to recollect the events of his whole life. Therefore it is not death we should fear, but the fear it inspires in us. We are wrong, says Socrates, to fear death, as it is our greatest possession on earth, and Seneca adds that it is the best of the inventions of life, while Montesquieu concludes that we should shed tears for men when they are born and not when they die."

M. Henry de Varigny examines the question of longevity in "L'Illustration" from another point of view. He asks: Has the man of to-day a chance to live longer than the man of 2,000 years ago? He bases his conclusions upon charts and statistics published by Prof. Karl Pearson in "Biometrika" and upon the researches made by W. Spiegelberg, of Strasburg, on the age of Egyptian mummies. These conclusions are that an Egyptian who 2,000 years ago lived to be 68 years old was likely to live longer than a modern Englishman of the same age. M. de Varigny gives the following explanation:

"Evidently there was among the Egyptians a natural selection, resulting from environment, that does not take place to-day, at least to the same degree, among civilized people. The Egyptians who reached the age of 68 years had robust constitutions and therefore their chances of longevity were exceptional. Mortality was higher among the children and the adults, and there was a kind of selection by death. The man of to-day is not stronger; he is probably weaker. But the majority of the people live under conditions more favorable to longevity, because we know what conditions to promote. In other words, the greater expectation of average life is the result of the progress of sanitary science in the

fullest sense, and not the result of an increase of vitality. It is the consequence of the evolution of man's intellect rather than of the evolution of his body."

For these reasons M. de Varigny asserts that although the chances of life have increased for infancy, youth and the prime of life, they have not increased for old age.—"The Literary Digest," May 31, 1902.

THE CRUELTY OF FOIE GRAS.

The sentimentalists who devote so much energy toward the suppression of experimental scientific research conducted upon the lower animals will find an abundant harvest of absolute wanton cruelty on every hand if they care to look for it. How many antivivisectionists, we wonder, eat foie gras? Do they know that it is made from the diseased livers of geese which are deliberately brought to death's door by treatment that is diabolically cruel? The unfortunate birds are cooped up indoors in boxes so arranged that the head alone can be moved. They are then crammed with a rich diet, which is forced down their gullet. Under these circumstances the liver becomes quickly affected, and in about three months has attained an enormous size from fatty degeneration. The larger the liver the more successful the process. The most valuable livers are those of a green tint; that is to say, fatty livers impregnated with bile pigments. The center of this trade is Strasburg, which sends out annually about $750,000 worth of this delicacy. A recent petition to the civic authorities of London to exclude foie gras from the banquet recently given to the Prince of Wales has excited the liveliest alarm among the merchants of Strasburg, inasmuch as, after Paris, England is their best customer. Three months of forced feeding is required to bring the unfortunate birds to the proper pitch of organic degeneration, so that their livers may tickle the palate of fat gourmands. Of a truth, any antivivisectionist who eats foie gras is committing an act of farcical incongruity. On the one hand he is eating a toothsome morsel procured by a course of prolonged torture practiced upon a harmless domestic fowl, while on the other he is railing at scientific men whose aim in experimentation is the highest conceivable, namely, the alleviation of suffering among mankind. Meanwhile, Strasburg flourishes, and science is tied hand and foot in the United Kingdom.—"Medical Press." Dec. 11, 1901.

ABOUT MOSQUITOES.

Major Ronald Ross, whose original researches in India and later work in Africa, and elsewhere have given his name first place among those of the men who have established the relation between mosquitoes and malaria, has sent to one of the London papers, says the "New York Times," a queer report received by him from Major Buchanan, a civil surgeon in Nagpur, India. It seems that one Joongey Lal, senior assistant in the hospital there, had refused to accept the mosquito-malaria theory, and, though he had daily watched dissections of infected insects and seen under the microscope the development of the malaria parasites in their bodies, he remained incredulous as to the effects produced by these parasites when, at a proper period, they were given back by the mosquito to man. His incredulity was increased by certain failures which he had witnessed, and which were ultimately explained by the mosquitoes having been kept at too low a temperature for the proper development of the infective stage of the parasites. At last, however, he began to think there might be something in the hypothesis, and one day said: "Give me fever and then I'll believe." "What kind would you like?" inquired Major Buchanan. "Benign tertian," was the reply, and, mosquitoes in the proper condition having been procured, Joongey Lal allowed them to bite him on Jan. 21, 22, 24 and 25, and was told that he would probably get fever between the fifteenth and twentieth day afterward. On the thirteenth day he felt a little uncomfortable, and a parasite was found in his blood. On the fifteenth day his temperature rose to 104, and four parasites were found in ten minutes. He saw these himself, and his incredulity disappeared. He desired, however, to watch the progress of his own case, and so not only refused to take quinine, but also, in his determination to sift the matter to the bottom, asked to be infected with malignant tertian. A few days' experience of the untreated benign form was sufficient for him, however, and his request for the malignant tertian was withdrawn. In the meanwhile members of the Royal Society's commission had seen the parasites both in the case of fever from which the mosquitoes were first infected and also in the blood of Joongey Lal. Barring the possibility that Joongey Lal's fever was a case of after, and not of because—a possibility fairly remote—the demonstration was conclusive. Cer-

tainly it justified, as, indeed, it necessitated, his conversion to the true faith in matters malarial. It also illustrates the fact that medical investigators, contrary to what the anti-vivisectionists say, do sometimes inflict suffering upon themselves as well as upon helpless animals.

MOSQUITOES IN DAMP PLACES.

A correspondent, "D.," to the "New York Times," June 5, refers to an article on "Mosquito Engineering," in which occurs this passage:

"The conclusions of the association's Executive Committee, drawn from the reports of their experts, are, in part: Mosquitoes breed chiefly in stagnant or slowly moving fresh or brackish water. That mosquitoes breed only in water is established beyond dispute. They never breed in the air or in bushes or in damp places, as is commonly supposed. There must be a distinct accumulation of water."

That they breed chiefly in stagnant water is quite true, but that they breed only in water, and that they never breed in damp places and without a distinct accumulation of water, I know from actual observation to be an error.

Some years ago I spent two summers at a cottage in a grove on the shore of an inland lake in the Highlands of Ontario. About the house there was an accumulation of leaves which had never been disturbed. I devoted myself for a couple of days to raking them into heaps, intending to tumble them over the bank into the water with a wheelbarrow. It turned out that, although the surface appeared to be quite level, at one spot there was a natural depression of about three or four feet, extending over two or three square rods. This depression was packed full of leaves, the lower layers of which were very damp.

Just when I had got these raked into heaps the gong rung for dinner—that gong was a curiosity; the mold board of a dismantled plow hanging by a grape vine from a branch of a tree. When struck by a wooden mallet, it gave out a sound which could be heard a long way.

When I returned to work, after two or three hours, I noticed a faint sound like the humming of bees. I thought at first that there must be a bee tree in the neighborhood. Moving about to look, I lost the sound; coming back, I heard it again. "Putting my ear to the ground," as the manner of some politicians is, I

made out that the sound came from the heaps of damp leaves. Examining them carefully, I found them alive with countless hosts of minute mosquitoes, the spread of whose wings, as I now recall them, could not have been more than a sixteenth of an inch. These were kept in constant motion, though they were as yet unable to fly.

The day was very hot, but whether they were being hatched before I disturbed them or whether the heat and air to which the raking had exposed them had hastened the incubation, I did not stop to inquire, but got them into the comparatively cold water of the lake as quickly as possible.

I noticed that the little fellows were confined to the heaps raked up from the low piece of ground where the leaves were deep and moist, but it is certain that there was no standing water there, and from the porous nature of the soil there never could have been any beyond an hour or so at any time, or under any circumstances. The eggs must have been deposited not in water, but among wet leaves. As there is no "standing or slowly moving water" within a mile of the *locus in quo*, the ancestors, when pressed by the maternal instinct, found relief in depositing the eggs, not in an inaccessible "accumulation of water," but in the next best place, which in the event proved a slow but good breeding ground.

It may be quite true that I should have pursued so interesting a subject further, and that I showed little intelligence in dealing summary execution upon the little army instead of keeping them for scientific examination, and to murder sleep for all and sundry in the neighborhood; but it may be fairly urged in extenuation that no one then suspected to what dignities the mosquito was destined. It was before he had taken out his diploma as a malarial and yellow fever expert.

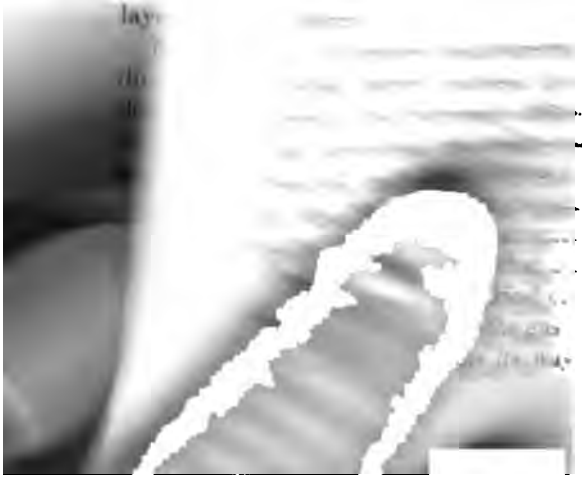
In those days it could be said of any man, except a professional entomologist, without reproach, in the words of one of the lake poets:

"A 'squito by the marsh's brim,
A pest'lent 'squito is to him,
And nothing more."

"THIS IS TOUGH LUCK," said Ham, mournfully, as he leaned out over the side of the ark. "What's wrong now?" queried Shem. "Why, all this water to fish in," replied Ham, "and only two fishin' worms on board."—"Ohio State Journal."

tainl
true
medi
say,
upon

A
refer
this
"j
draw
brec
wat
disp
plac
cum
T
they
and
obs
S
the
the
bee
the
wa
fac
dep
squ
lay



...nartment o
...e and ne
...unn
...ar ne-eventu
...ammarian bor-
...e factories and
...ayes said,
...mes ion ear, and
...greater n ts
...n r ll o ne
...se no have un-
...means that they
...pinion com-
...n o ne fran-
...ound in sewers,"
...rowing life when en-
...me, to not contain
...nceded fact that
...millions microorganisms in greater
...sewers properly built,
...ation, the air within it—the
...ring purposes from
...eet ar, a theatre or even a
...e explosive as gun-
...osn, of low specific
...He referred to
...ew York with
...e of residence
...sicians in the
...eering this remark.
...not the only impervious
...one at the surface which will
...Gas which leaks under such
...nto sewers and subways, and

causes what are known as "sewer gas explosions," which are very disastrous frequently.

"My investigation of the subway explosion, in Park Avenue," the speaker said, "leads me to believe that the dynamite was detonated by the preceding explosion of gas from main leakage."

Gas, the speaker said, gets into houses primarily from leaks in distributing pipes and around fixtures and from leaks outside the foundation walls. It loses its odor-imparting constituents and consequently is not detectable by the sense of smell. Gas under pavements is found hundreds of feet from the leak. That part of it which goes into the sewers works back into houses through drains and waste pipes.

"I am of the opinion," the speaker said, "that it is incomparably the most dangerous element of that mysterious and indefinable compound which is so loosely designated as sewer gas. It is not unusual to find the atmosphere in houses vitiated to the extent of one-tenth of 1 per cent. by this gas. Health is impossible and sickness inevitable as the result of habitual exposure to such conditions."

Dr. Bayles referred to the magnitude of the task of keeping the gas mains in repair, and said that the gas loss, great as it is, is less from a purely financial viewpoint than the expense that would be necessary to stop it. To illustrate, he said that the gas company would be glad to let to other persons the contract for keeping the mains of New York in repair at $1,000 for each day of the year, but no one wants it at that figure. The evil, the greatest modern sanitarians have to deal with, the speaker declared, must be stopped, and he urged that the public demand legislation that will make a remedy possible.

The report of the Committee on Hygiene showed that the number of cases of smallpox in New York City thus far this year is somewhat larger than in the corresponding months of 1901. The contagion, however, is confined almost entirely to the vagrant class.

CHILD SWALLOWS A SILVER HALF DOLLAR!—A wonderful story comes from Waco, Texas. A seven-year-old child swallowed a silver half dollar, causing serious symptoms. A physician was called, who promptly administered a little mint. There was an immediate change, and before nightfall the child passed five silver dimes.—"The Medical Times."

THE TUBERCULOSIS QUESTION.*

By Prof. Dr. Moritz Benedikt, of Vienna.

I. INSTRUCTION.

The Vienna school still holds, since Skoda, the reputation of strict logical mode of thought; and the genius of the Austrian people possesses the qualification on the one side, of "bon sens," and on the other side, of direct impressionability. These qualities protect us from being one-sided and dogmatic. The doctrine of Tuberculosis has yet many deep loop-holes, and rapid deductions from the knowledge thus far attained may become positively and negatively dangerous. Though not as a specialist, but as a student, and as a thinker strictly methodical from the school of the creator of the "pure critique of reason" in medicine, Skoda, as pupil of the incomparably unprejudiced diagnostician and therapeutician Oppolzer, have I paid attention to the various questions, and for that reason I take the liberty of taking part in the general discussion, and I believe that I can advance many ideas which will not be broached by others.

II.—THE INFECTIOUSNESS.

The most important question is probably that of the infectious capacity of consumption.

It is well to consult in all questions the greatest teacher—history—and there we find that a great master in the so-called obscure, but often sunlit antiquity, that Galen had already affirmed that question and recognized the most important condition of infection. He teaches: "With phtysic patients there are putrid exhalations in the room which they inhabit and a fœtid smell. Experience shows that persons sleeping in the same bed with phtysic patients or a longer period of time dwell together, eat and drink with them, or use their clothing or linen without these having been purified of their noxious quality, are attacked also by phtysis." We will recur later to the full importance of this doctrine, for the knowledge of which I am indebted to Dr. Max Neuburger.

A second important lesson from history I draw from the fact that the danger of infection from tuberculosis cannot be very

*Translated by Moritz Ellinger, Esq., Corresponding Secretary of the Medico-Legal Society. Read at the American Congress of Tuberculosis, June 2-4, 1902.—From advance sheets of the Journal of the Medico-Legal Society.

great, as it disappeared temporarily from the consciousness of the scientific world. If such authority in clinics like Skoda and Oppolzer could overlook such causes of the origin of tuberculosis, then infection could only take place under specially favoring conditions. Doubtless the danger of infection is exaggerated to-day in its sociological dangerous manner. There exist peculiar conditions, not known to us yet in their exact existence, under which infection takes place.*

A further lesson from history, which on this occasion looms up drastically, is that every advance in science brings with it also a retrocession. With the great acquisitions of pathological anatomy, which conceived the tubercles as "new formations," disappeared the old doctrine of the origin by infection. Of this general principle, which is constantly evidenced, we must take the admonition to ask anew to-day, whether there is not in the present day progress a partial misconception of the truth?

III.—THE HOMES OF THE INFECTED.

If we inquire into the conditions and opportunities of the danger of infection we meet first the question of habitation. The abode of the populace, the home of misery, is the most important breeding place of consumption. In these dwellings thorough ventilation, sunshine and cleanliness are out of consideration. The poison of disease broods in the filth which fills the air and which sticks and accumulates on the walls, on the floor, on the furniture, the clothes, the linen and the human bodies.

The linen, and especially the bed linen, and the clothes of diseased and deceased are at the same time used by the persons still in health.

This dwelling together of healthy and sick persons in dilapidated rooms under the mentioned health-injuring conditions is the most dangerous, as in most cases it affects persons who are poorly fed and are also exposed to the inclemency of the weather.

Stress must be laid upon the fact, that dwellings will not become dangerous as bearers of the germs of infections by short and passing use of a patient, but by long and frequent use, if the

*If the former practitioners had beecme acquainted with the disease in the dwellings of the people, of, altogether the "bourgise" world, to which the learned world belonged, would have troubled themselves sooner about the socio-political question of the misery and its effects, the capacity of infectiousness of consumption, would not have escaped their observation. It is an honor to the English physicians that they have interested themselves, beyond the intellectual point of their professional noses, in the welfare of the "people" with warm, humane-throbbing hearts, and have, therefore, recognized at an early period the danger-arising from the dwellings of the populace from the spread of consumption.

necessary sanitary precautions are not taken. It is necessary to point this out to guard against an unnecessary and disturbing panic among the people.

It is further certain that the living together with persons suffering with phytsis is apt to become dangerous, and especially in connubial union; the healthy party may be attacked with hasty consumption, especially if the patient is already in a hectic condition, feverish and subject to night sweats. But we often see this danger pass by, if there is no predisposition and the other hygienic conditions are favorable.

Next to the dwellings of the populace, special sanitariums under certain conditions form the greatest danger for the aggravation and dissemination of consumption. Patients who enjoy at home many hygienic advantages, namely, a favorable residence and a healthy nourishment adapted to their condition, and good nursing, are transported to sanitariums and they return in a miserable condition, or not at all. Experience teaches us that the older the sanatorium is the more dangerous it is for the patient, for the attendants and for the population in that place. Many years I am pained by this recognition, for which I made in vain propaganda in friendly circles, and when I announced this opinion for the first time in my letter to Mr. Abbutt, it was not without some apprehension. Considering the many interests affected, I had to fear the fate of Ibsen's "Volks feind" concerning the people, and in addition, to have made such an unenviable reputation to no purpose. I am happy, however, to state that no opposition arose.

Wherein exists the danger of the sanatoriums? Above all, again in the dwellings. Through decades and in every season, consumptives change off with consumptives in the same chambers; the walls, furniture, linen, floors, carpets, curtains are suffused with poisonous germs, and this material attains in time, through accumulation, that quality which conveys the full power of deathly work.

My experience in reality is that the dangerous point is not bound up with the place, but with certain dwellings and quarters.*

A further danger consists in the intermixture of linen for body and beds of the sick and those of healthy persons, and that the disinfecting of this linen, by strong heat is not sufficiently provided

*In a certain southern refuge the sewers of the city, situated higher up, run down under the houses inhabited by the patients, to the rivulet. There is also situated the park and the music stand, and until recently the cold water baths with boarding places.

for. In this linen, however, are found the conditions which give the germs their full infectious quality.

Added to it is the fact that all the places in which the tuberculous patients aggregate, influenza becomes easily endemic and grows to be a Damocles' sword for the sick.

In the same rooms, in the same beds, with the infected linen live the natives out of the season and catch the disease.

In a country sanatorium to which I have given considerable observing attention, the female native population is to a remarkable extent, more exposed to the danger of infection than the male population, and especially the robust young peasant girls. This evidently arises from the fact that the tuberculous male guests, who are, as is well known, very libidinous, are listened to more favorably by the country lasses than is good for their lungs.

The sanitation of the health resorts is, therefore, a pressing requisite. We will refer to this further on.

The next, as places of infection, are the hospitals. It is well known that in older hospitals there are always rooms which are not only dangerous to the patients, but also to the nurses and the physicians. It must be remarked that this not only refers to tuberculosis, but also to dysentery, Egyptian disease, typhus, etc. And here we again meet with the remarkable fact that such bad conditions continue for years, without that the authorities deduce the necessary conclusions and that the facts are guarded for a long time as an official secret.

Such poison abodes are but too often the barracks, and next to them the prisons. Of course, it is not only the poisoning of the living compartments and assembly rooms which are detrimental, but also very often a guilty lack of proper nourishment. I know a prison in which the mortality decreased in one year by 12 per cent. as soon as a conscientious director assumed the provision regulation. Especially military prisons, and especially those located in cassamates, often form expresses to the other world, and in order not to make statistics too horrifying, candidates of death are frequently pardoned and sent to hospitals or to their homes. According to various localities condemnation to imprisonment for 1 to 3 years often means condemnation to death, and the axe is swung by tuberculosis. This is the more terrible as condemnations are not always pronounced for crimes, but for violations of discipline, and because many military criminal laws, and especially the criminal codes, are imperfect, and errors of justice are easily made.

That even in lunatic asylums—even in the luxuriously appointed English institutions—tuberculosis may make it appearance as an epidemic in the place, has been observed with horror by the English colleagues. In this it is not the poisoning of the institution which alone plays the role there.

How dangerous it is to expose such evils is best shown by an incident in history, which should be preserved, of the renowned Austrian gynæcologue, Semmelweis. The lying-in hospital, as it existed then, had as chief an ignorant, weak-minded and incredibly careless professor. There prevailed the septic puerperal fever, and the carelessness had to be charged with 20,000 victims. At times only the mothers, who had given birth in the streets, escaped with their lives. Semmelweis roused an alarm, but without any momentary success, and his honesty and faithfulness to duty undermined his life's happiness. History acclaims him as the pioneer of Asepsis; but when a call to the Vienna University was spoken of, he received of all the members of the faculty but one vote—albeit that of Skoda. That so noble a circle of men which composed the faculty, would not pardon the opposition of a young scholar to an Ordinarius is worthy—though not for the object of intimidating—to remain forever memorable. Such sins are committed by even the noblest oligarchy from considerations of esprit-de-corps.

Often the Congresses are the proper places to bring such evils to the light of publicity, and to morally compel the respective authorities to afford relief.

IV.—THE POISON-GERM.

Above all the question of the origin of the poison-germ and its vehicle must be elucidated. Outside of the products of cattle (milk, cheese, perhaps meat), it is man from whom the poison of consumption originates. The sputum and the exhalations from the lungs are looked upon as the chief vehicles. Certainly not less important the sweat, neglected wrongly by the moderns. Sweat is the attempt of nature to discharge the poisonous matter, and that its admixture with the air and food means the poisoning of others, is doubtlessly ascertained from the facts in our clinics. From these sources rise also the dangerous quality of insufficiently disinfected linen of person, and bed and clothing of the patient.*

*The great mortality among nuns from consumption arises probably from the fact that, as a symbol of renunciation, they exchange mutually, linen and clothing, wear them, and also from diseased and dead persons.

It would be in order again to turn to the sweat that carefulness of research and investigation applied in former centuries.*

Clinical facts—much better than those from the laboratories—tell us that all these poisonous vehicles from the human body must be aggregated, and as Galen maintained become only active after a long time. It seems that there must first develop a certain fermentation or putrefaction until the germ becomes active.

Also the undoubted circumstance that the exhalations in the later stages of consumption are more dangerous, favor the evidence that certain changes, not yet known, take place. The mass of microbes alone is not determinative.

It appears to me that the attempts of Koch to infuse cattle with human tuberculosis failed because he used virus not thoroughly fermented, or not fully putrified. If he had brought a cow into a sick chamber in one of the sanatoriums known for its infectious quality, left her there for some time, and permitted her to lick the soiled beds, linen and the body of the deceased, and had her given the chance to sleep together with the patient—naturally moralitatis causa with a female patient—he might have had a better success.

Whether the vehicles or the microbes, or both, undergo therein a change, is not as yet known, nor has the question as yet been seriously entertained.

V.—THE FUNDAMENTAL THEORY AND THE ETIOLOGY OF CONSUMPTION.

We will now elucidate the question of the origin of consumption from the standpoint of logic and experience. Then, if we assume that consumption is always an infectious disease the doctrine of origin is by no means exhausted by the doctrine of the qualities and the mode of acting of infectious germs of poison.

Toxicology teaches us that there are poison-receptive and poison-immune tissues and organisms.

At every such inquisition we must establish a basis of biological thought. Every biological expression (manifestation "M")—and every disease is one—is first dependent upon the inherited†

*The old method of privation and versicatore is still in use in many countries in cases of tuberculosis. It is plainly effective in favoring the extravagasation of a "Muterin peccans," at a place with lessened resistance.

†Inherited does not say that one of the parents should have been inflicted with the same disease. Inherited must be taken here in the sense that already in the moment of the impregnation of the ovum the germ of the disease existed. The question is, therefore, of a germ-disposition, and we may in such a case speak of predestination instead of predisposition, whilst we may designate all expected previous positions from the life of the fœtus as preparations.

or organic quality of the being or organ in question, which we designate as its nature ("N"). Next determinative is the development ("D"). The factors of this development are of different value. Part of them penetrate so deeply into the conditions of existence, that it becomes a second nature ("I"), while others do not penetrate as deep and which we must designate in a narrower sense as moments of development ("E"). Besides there are causes of chance ("O").

The sum of equations N. N. and E. present the predisposition in the wider sense the part (N.) thereof in a narrower sense. In mathematical form this biological fundamental form must be thus written:

$$M=f\ (I\ N\ I\ N=E=O)$$

We can say positively, consumption originates only where the nature of the organism or of an organ makes it possible. It is, therefore, all the original nature (disposition) determinative, and it is certain that there is an organic consumption, in the sense of an inherited disposition, exclusive of that acquired during the life of the fœtus or in childhood. The latter form, which influences the entire growth of the organism from its first disposition, ranks in importance with inheritance, and are found, therefore, in class "N", that is, in the second nature.

To-day, inherited, organic consumption is thrust to the background, not by nature, but by the learned profession.

These inherited and even congenital cases are namely, for the presentation at this day of the evil, very disturbing, and there have been explanations advanced in order not to touch the deductions. He, however, who has studied such cases will not subordinate the prominent facts to any dogmatic theory.

I have myself two demonstrative cases: In a family, blooming, robust young men and girls were attacked at a certain age—at the beginning of the second decade of their lives—in perfect health, by hasty, fatal consumption. The individual cases happened at an interval of several years, consequently exchanging mutual infection and the hygienic condition was favorable. There prevailed then the same relations as at the outbreak of an inherited amroia paralytica, tabes or cancer, which crop out at certain ages, and the breaking out of which is predestined from the moment of procreation.

In another numerous family appeared among some members acute consumption at the period of the first puberty, without pronounced cause, most of which proved fatal, while others members

of the family kept blooming and well, though they lived under the same conditions.

Opposite to this definite lifetime of the appearance of consumption the question is opportune, whether individuals so sorely affected from their childhood could be protected before the outbreak of the disease by sojourning in places without the cells of Koch. If this is not the case, then the independence from the effects of Koch's cells would be established.

The appearance of these cells of Koch in these predestined cases could be conceived as an escapable symptom like the appearance of fungi in cellars where neither fresh air nor sunshine appears.

We have already mentioned the fœtal and juvenile cases which belong to class "N". A further transformation of man's nature may be effected by economic, social and climatic conditions, above all by the mode of occupation, etc., that the sum of these factors of development as "second nature" may so powerfully prepare the disease as the original disposition.

In most occupations which bring on consumption, the irritation of the lungs by intermixture of chemically-mechanic materials with the oxygen taken in induces inflammatory conditions, on the basis of which a development of the disease takes place, most probably through the influence of the Koch cells. According to the fatality of these phenomena, these influences may be counted with either factor N or E. In other occupations, for instance tailoring, consumption originates because during the labor a part of the lungs—especially the apices—are not ventilated, and therefore, the tissues lose their normal activity and power of resistance, so that the Koch cells, with the toxins drawn from the tissues bring on the disease.

All enfeebling diseases may become developing factors of consumption.

Nervous affections may also be considered favoring the disease, such as the degeneration of the respiratory nerves, with paralysis, tabes and myelitis. Also the great loss of flesh in hysterical inappetence and vomiting cause consumption, like the consumption through hunger and destitution. Also in cases which I have designated as "asthma diurnum," at which a persistent incomplete respiration takes place, would cause in an equal way consumption.

We have considered until now the "nature," the "second nature" and other faculties of development of our preceding formula.

We must now inquire into the proper accidental causes (O) of the disease.

Here we must again inquire whether such is always necessary. The inherited causes do not compel us to such an assumption. We can perceive that the conditions of life are such that the healthy process of living conditions and chemical changes at a certain period of life, as well as in inherited paralysis, or tabes, or carcinoma, assume a character of sickness. Even if in such a definite symptom, namely, the appearance of the Koch cells were under all cases and from the first moment determined, it does not say that logic would demand that these cells present an essential condition of sickness. It might be possible that there are many unavoidable evidences, an adjuration, an expedient.

The conception of tuberculosis for these cases as a disease of degeneration was the one generally assumed before 1882, and is not, as appears to me, entirely free of objection at this day, though we have entirely relinquished this conception.

I do not wish to make of this an assertion, not even express a personal conviction, only the right to state my doubt. Doubt is the mother of criticism and the guardian of false deductions and errors.

It is beyond a doubt, however, that in inherited and acquired predisposition, the tuberculous virus usually generates the disease.*

VI.—BACTERIOLOGY AND CONSUMPTION.

Before I pass to the regulations and measures for the cure of consumption, I beg leave to make a trifling excursion into the field of the doctrine of microbes. I have avoided until now the expressions bacillus, bacteriæ, bacteriology and bacteriologues—in German staebchengelehrte. The one reason is purely philo-

*If we designate as the most important accidental cause infection, we must not forget another, at least as local inciting cause and that is Trauma. Remarkably so Meniugitis tuberculosa often appears on the spheno "parietal sinus." As long as tuberculosis was considered a pure new formation, this cause was specially puzzling, and it required special courage to acknowledge with Oppolzer this fact, though unintelligible. Why, I was a witness as student when Rokitansky ridiculed the attendants at the clinic on account of their recognition of the traumatic causation. Griesinger, though, had also assumed then Trauma as the causation of carcinoma of the brains, and the local outbreak of carcinoma at Trauma with its metastatic effects is very generally recognized, I believed that I contradict Griesinger. I assumed that in his cases to consider the fall as the first symptom of the carcinoma of the brain, than opposite. I thought to be more justified in this as I saw two cases which could apparently be traced back to carcinoma of the skull by which, however, necroscopy proved cyosicercus. Impression upon me made only the popular belief that lascivious treatment of the mammal leads to carcinoma. To-day it is beyond doubt that Trauma, where disposition prevails, may lead to it that the process of reaction assumes the tuberculosis or carcinomatose character, with meningitis tuberculosa one may think of the introduction of virus into the irritated place.

logical. I hesitate to use words which are a sign of the philological capacity of the academic world. The designation of an object which looms up in observation and recognition, should express the form as well as the qualities. We understand to-day by bacteriæ and bacilli in medicine all these minute beings which stand in close connection with contagion. Only a portion of these beings have the form of a staff. The form is, therefore, not designated in a number of cases.

Of the qualification the designation expresses nothing. We know now that these minute beings are living beings, with the power of assimilation and propagation, and we might therefore, for the present at least, designate them as cells. They are compared with the average cell form, very minute; we might, therefore, call them "dwarf cells," and as they stand in close connection with the toxination and contagion of living tissues, we can designate them as "toxin-contagion, infectious dwarf cells," and in the text the designation might be abbreviated.

These dwarfy beings have not perhaps the importance of cells, but of cysts or only of protoplasmic flakes, analogous to the particles, the movements of which in the so-called karyokinese are visible in the cell of the ovum, which after all have the significance of independent living substance, as they avoid the foundations of the individual tissue-elements, with their qualification of assimilation and propagation. The necessary change of the expression: cell would become then a historical moment of progress in knowledge.

The more indeterminate expression partially could be used; but it is not fit when applied to living substances.

There is, however, another reason why we have preferably used thus far the indeterminate expression epidemic toxin or virus.

Whether pure cultures of the Koch toxin cells could generate consumption is questionable, as far as the human being comes in question. Outside of the food from cattle, infection is carried from man to man, and if in all cases of infection the toxin cells very probably play a role, it is highly probable that there is toxin present in the vehicles, which are perhaps much more important than the cells themselves. For it is affirmative that older and advanced cases are more dangerous by their isolation than cases of shorter duration and less acute, and that the proportionality between the number of cells and the aggravation of the case is disputed by many.

It further appears to me, as I have already expressed myself

twenty years ago, that "bacteriology does not as yet hang upon the right hook." Inducement offered: first of the inherited cases of consumption, which make their appearance at a certain period of life, in which, at least during the process, toxin cells could be shown, but their absence in the first beginning was not beyond doubt.

But the appearance of plague cells in sporadic cases of tetanus made me skeptical. I was more confirmed by the latest fact in this class, namely, the evidence in such cells, capable of assimilation and propagation at the time of epileptic attacks, by Dr. Bra, in Paris. I doubt not for one moment that soon all analogous proof will come forth in case of raving mania, or perhaps even in outbreaks of rage a la Lear. We will then comprehend the rare cases of outbreak of Lyssa through the bite of maniacs and the primary appearance of Lyssa in dogs through violent sexual excitement.

We can also deduce from analogies that in sporadic cases of yellow atrophy of the liver through violent psychic excitement such cells will also be found as in epidemic "yellow fever," and so on in many cases of acutest irritation of tissues in degenerations under irritations.

These facts give cause to ponder. I have drawn a deduction therefrom, which, if it should be verified, would cause a revolution in the theory of epidemics. I refrain from expressing it, because at this time, even if verified, it would call forth a riot against me.*

At any rate should we be reserved in drawing conclusions, especially when the question arises to prevent and cure consumption?

I may be permitted yet to make a remark of logical method. It appears to me as if the modern doctrine of toxin and epidemics commits the mistake to transfer the deduction drawn from experiments of a certain toxin upon all other without critical examination.

VII.—THE PREVENTION OF CONSUMPTION.

We can now pass to the discussion of the measures of prevention of consumption.

I pass by those of prevention of transference from tuberculous cows.

To the question whether the test of tuberculin enables us to

*Also the remarkable fact of the so-called senseless origination of anticusmo. (Max Gruber's secretion, which course in the blood of serum-animals as isolated groups of atoms furnish food for thought.)

recognize in proper time the tuberculous condition of cattle, I cannot answer, as I am evidently not competent to do so, as little I feel competent to say whether that test in man is of value or should be made.

The next measure of prevention relates to the neutralization of the toxin excretions and exhalating matter of the patients, namely, of the sputa, the sweat and the toxine material in the air of exhalation.

Upon the latter adequate air currents and sunshine have probably the best effect. They are altogether the deathly enemies of the tuberculous virus.

Further, minutest cleanliness of the body of the diseased and of those with him still in health.

We guard thereby not only against the infection of the healthy, but prevent the incessant renewal of auto-infection of the sick persons, who should be as much as possible in fresh, pure air.

We now get to the accumulation, the removal and the destruction of the sputa. We will return to this in the discussion of the reform of health resorts and sanatoriums.

The sweat should be removed by careful ablutions with a wet cloth—perhaps as customary, with a solution of vinegar acids. These rags must be kept in a closed vessel and exposed to hot air.

To the measures of prevention also belongs the removal of the sick from their surroundings, especially in unfavorable conditions of dwelling and other social conditions.

This compulsory removal must, as in cases of insane and persons suffering from contagious diseases, be regulated by legal provisions. In order that it can be carried out, provisions should be made for the families of the patient upon whose labor they are dependent. Since society assesses the value of animals that have to be killed, it should be obliged to do so in respect to human families.*

The preventative measures referred to also apply to the sanitation of the former mentioned birth places of consumptives. But we are affrighted at the task of this sanitative measure. We stand here face to face, for which the science of the physicians is determinative, but whose power has little weight.

What great social revulsion and social activity is called for alone by the sanitation of the dwellings of the poor, which harbor great destitution and misery? Here the friend of humanity must above

*To the preventative measures belong also those which afford protection against heritable transmission. We will refer to this again.

all raise the call of general disarmament in order to receive the help of the colossal sums of military power for the regeneration of broad masses of the population. But how powerless are we physicians to fight. The chauvinism and imperialism of the nations who hinder it, that the less expensive philanthropic benevolence push away the more expensive hatred and the still more expensive lust for power.

Our activity becomes here a discouraging patch-work.

Our first duty concerns the sanitation of the health resorts. For this purpose it is at once requisite:

1. That the reception of consumptives in a private house be subject to a permission from the authorities, which must be preceded by a careful investigation of rooms and arrangements, and to the permission must be attached a definite hygienic regulation—. of which later on.

2. Every health resort for tuberculous patients must contain a hot-water laundry, where linen, carpets, curtains, etc., can be exposed to the germ-killing heat.

Altogether, care must be taken that the linen of the population, not only of the health resorts, be exposed to hot air, and the larger communities must establish hot-water laundries in which under the direction of the administrators of the poor and the physicians of the poor—the linen of the poorest be purified. The ironing is then left to the owners. With that a reorganization of the laundry business must go hand in hand, as the present form harbors numberless dangers.

3. The appointments of the room must be so that the infectious germs have as little chance as possible to remain attached. The walls, for instance, should have oil or water glass paint, the floor covered with linoleum.* Bedsteads and furniture should be of iron, that in case of need they might be exposed to steam heat.

4. Every fresh use of a room should be preceded by a thorough disinfection, and above all, an airing of several days.

5. Of course all things needed for helping cure must be found in the health resorts.

6. Every health resort must stand under strict supervision of the State, directed by a special medical officer. Of course private practice on the part of the officiating physician is out of question, to insure his independence of all local influences.

The resident authority, commitment doctor and health resort

*Probably the best material for a hygienic floor would be asbestos cement, as used, for instance, in the Hanved-Hospital in Buda Pesth.

physicians are not adapted because they come too easily in conflict with the interests of the people, and apt to be compelled to connivance.

7. The practicing physicians are obliged in specially dangerous cases, at the departure of the patient, or after his death, to make a "confidential" report in order to rouse the attention of the official to supervise the proper disinfection. It is also the duty of the physician attending at the house or at the rooms to make a report whenever the symptoms of a prevailing infection appear.

Neglect of the duty to report should be subject to definite penalty.

8. Altogether it would be well to reform the whole system of health resorts, so that a system of smaller and smallest sanitariums be introduced, which, to the largest extent, should be left to private enterprise under State supervision.

To other necessary measures of prevention we will recur in the discussion of sanatoriums. I will call here attention to some mistakes in the use of health resorts.

Many patients visit them with insufficient means.

Then they herd together patients in dwellings that are pestilential, are insufficiently nursed, and return home in worse condition than when they came.

This evil formally clamors for sanatoriums, especially in health resorts.

A further mistake is to send acutely sick persons in fever to distant health resorts, especially in winter, to die there or perhaps on the way. Though we may not tell the patient, "Stay at home and die in comfort," still we may appease him and hold out hope to him that he may improve. It is against all sense to send patients, in winter or in the fall, to Southern health resorts, to stay there for a short time, if they have to return during the inclement season to their homes.

Attention may be called here further to two incorrect actions. One is especially committed in sanatoriums supported by philanthropists. Patients severely sick are not received, in order to have more favorable statistics. Sanatoriums, however, are established for the best possible relief they can give, and not for the favorable statistics.

Very nearly criminal, at any rate censurable, is the abuse practiced in health resorts, in sending away patients in a dying condition, who then die in a coupe or in a way station. The excuse that death and funerals disquiet and harrow the other patients

does not hold good. We know that in nearly all sanatoriums many operations take place and many die. It can be as easily arranged in health resorts, as in sanatoriums, that the survivors are kept in ignorance. "They have gone away on a journey," might as readily be said of travelers to the other world.

What must be done in order to make infected hospitals, also barracks and prisons of that character harmless, need not be elucidated.

Here a heavy-weighted moral movement comes in question. Those interested must have the courage of conviction and their courage must not bend before official force.

Lying, white-washing and denials must be banished from public life.

The dangers of infection in large and small factories are at least theoretically decreased by sanitary ordinances and factory laws; only care must be taken that the laws are carried out. The same applies to schools and to school hygiene.

VIII.—TREATMENT OF CONSUMPTION.

We now come to the treatment of consumption. Here the already mentioned measures, which prevent the constantly renewing auto-infection, is the first role. All treatment which improves nourishment—and to this belongs the furnishing the starving with food—further all those which better the condition of the general strength and the resistive power of the tissues, are important for the treatment of consumption. Hardening by timely applied hydrotheraphy and strengthening of muscles by proper athletics, must never be lost sight of. Good air, with much tarrying in the open atmosphere, and a good deal of sunshine, will remove the germs in the body.*

For all patients who cannot find in private treatment all they need, the treatment in a sanatorium is fundamental for cure.

From all said heretofore, the first rule ascertained is that we should not build as sanatoriums either palaces or barracks. These will become in time breeding places for the tubercle poison. It cannot be denied that in every new institution effective hygienic arrangements can be made. It is certain that with extreme, so to say, boundlessly liberal precaution, a home for tuberculosis patients can be kept intact for a long period; a private sanatorium, for instance for operations, which has a splendid clientage and an accomplished director, who is conscious that

*It appears to me, though without sufficient experience, that arsouvalisation is an important medicament for extirpation of the germs in the body.

the institution can only prosper as long as it is not infected, or is kept free of infection, with a large staff of physicians who know what they are aiming at. In large, specially public hospitals, this is not easily accomplished. With tuberculosis airing and sunshine play a great role, and the larger the house is the more difficult will it be to keep the air pure and have sufficient sunshine.

It follows from this that sanatoriums for those suffering from tuberculosis should consist of small pavilions, and that the erection of such pavilions should be aimed at in special health resorts. The opportunity should be afforded for all, rich or poor, to be accommodated in such pavilion sanatoriums. Very wealthy patients can procure for themselves all needed conditions and accommodations. Sanatoriums should not be monumental buildings, so that after a number of years they can be taken down without great loss and removed, if they prove to be infected. Special emphasis in the erection of hospitals must be laid upon the separation of the rooms where the patients spend the days from the bed chambers, and that for the patients in an advanced stage of the disease, two rooms should always be available, which by day and night can be interchangeable and thoroughly aired, cleansed and admissible to sunshine.

The arrangement seems to me ideal, that the sleeping rooms be situated to the east and the day rooms to the west, so as to have the sun at all times. Between a corridor with a ventilatable glass roof that would absorb the mid-day sun. The demand for south rooms seems to have originated from the misapprehension of the Northern people, who interchange south and west.

Where a public colony is founded in the proper location, the treatment locality, among which also the technic—therapeutical, such as baths, inhalations, etc., should be at a distance from the residences. Where an aggregation of patients is had, the meadows, gardens and promenades should not be neglected, as there can be no doubt that in the soiling of these places an extremely poisonous virus can develop.

Important in this respect is an American observation on the meadow of a military invalid home, which was largely occupied by consumptives, the patients roamed about for years and naturally expectorated a great deal. When permission was given for a herd of cattle to graze there they became infected with tubercles.

As naturally the sputum becomes specially dangerous where patients accumulate, the question of removing the danger must

be considered, and above all the cuspidors, in order to escape the danger of infection.

Here it must be remarked again that we must proceed with full honesty. We have been in error of the time of the so-called antiseptics to believe that we could kill the germs of infection by weak solutions, for instance, of carbolic acid and sublimate; to-day we have come to asepsis.

Perhaps we do many a thing which is superfluous; but we know that we have not arrived yet at a practice which offers full security.

Every disinfection should be absolutely perfect and it should be guarded against that people should become soiled in the transportation. The destruction of the germs should be effected in the cuspidors, and for that purpose I think Aetzalkalis, and perhaps, better yet, kali hydricum, I consider most efficient. The powder is, perhaps, the best if a light water solution is possible, because the heat generated helps.

Of course such vessels must be so constructed that when used by the patient and in transporting them, no injury can be done to patient and servants, and, therefore, the proper material must be selected.

The material of such cuspidors must, of course, be chemically of good duration and stand a certain degree of heat. The vessel must be closed by a funnel-shaped cover, from which, through the infusion and especially through a stream of water, the sputum can be easily emptied into the vessel. It is also appropriate to fasten these vessels so that they can be lowered or raised, according to the size of the patient.

Naturally enough it is not only necessary to place such vessels in the hospitals and their surroundings, but in all places where a large number of people gather, among whom there are supposedly physical sufferers, as well as in all meeting places, in churches, schools, hotels and recreation localities. The people should become accustomed to use these vessels exclusively, even on the incurrence of penalties.

The people habituated to make use of these vessels in all public places and streets will see that they have a purpose, esthetical as well as sanitary. That the sputa in public streets and places involves a danger is probably a child of scientific imagination. Not only consumptives, but smokers, people afflicted with catarrhs, expectorate; and to impose a penalty would border on the ridiculous, should, perhaps, a police officer, who prefers the charge, make an "oath" that the sputum contained the Koch cells!

That in sanatoriums for consumptives arrangements for baths and lavatories for the cleansing of the whole body, are necessary, must be again laid stress upon, as the body extravasations are deleterious.

That the exhaled air contains suspended toxins leads to the deduction that the crowding of patients in the chambers and in the halls should be avoided.

The climatic condition of the establishment of sanatoriums need not be elucidated. Localities free of fogs, strong winds and dust, in moderately elevated woody parts, or in the mountains or by the sea shore, have each their justification and their advantages.

For the rough seasons, localities are of course preferable, which to people from northern countries, a spring or summer season. That, especially at the right time, patients hardened against the changes in weather, may remain in "cold" regions during the winter is shown by experience. In southern health resorts, where in day time violent contrasts of temperature take place, patients injure themselves by carelessness more than in cold regions.

I will call attention here to a circumstance which is of the greatest importance.

Patients, dependent upon their labor, should not be discharged before they are capable to work, and their families should be assisted until the patient is fully restored to health.*

If the patients are discharged too soon, relapse is risked, or the disabled fall into pauperism, vagabondage, alcoholism and become a greater burden on society.

Another important question is that of homesteads and who has to establish them.

Philanthropy and charitable societies may give the inducement and take the first steps. The obligation to erect them, however, rests upon the State authorities. The obligation to erect homesteads is parallel with that of establishing hospitals and insane asylums.

Philanthropy works with insufficient means; besides it uses the means at its disposal in a squandering way and deceives, under self-conscious praises, its work beyond the extent of its true value.

It must be also pointed out that poor patients should also be cared for by private nursing in families adapted for it, but under

*Whether it is advisable to establish special re-convalescence asylums is questionable.

competent medical supervision, who should also be entrusted with the hygienic care and supervision. There could be cultivated institutions for private nursing families as it is done in the case of lunatics and foundlings.

Of a colony of such families a health resort could be developed.

We are and will remain for a long time in embarrassment what to do with our sick as long as we have to deal with infected hospitals, health resorts, unduly bad sanatoriums, in which, especially during the winter, influenza prevails, while other healing institutes are lacking, or not found in sufficient numbers.

The distribution in qualified private families in the country might after all be quickest organized.

We will call attention to a source of relief at our disposal at this time.

There are now plenty of sanatoriums which could be used for the housing of sufferers from tuberculosis.

There are the so-called cold water institutions which are mostly closed in winter and not in use. As their locality is mostly selected with the view of their freedom from dust, fog and wind, their usefulness seems to be unobjectionable in winter. The sanatoriums will have to be fitted out according to the regulations laid down in various places. They can receive now without objections consumptives by legal permission. But they will do well to apply, for their own safety, for a special concession and control of the authorities in order not to arouse the apprehension of the other patients. That well-fitted and well-administered institutions could be kept free of toxication, especially when they locate consumptives in special apartments. But especially a hot-water laundry will have to be provided for.

Besides this there are hotels and boarding houses in localities which have a good deal of sunshine in winter and are situated in good mountain air, are also under medical supervision, are well heated in all the halls where society gathers, and outside halls are mostly provided with hydrotherapeutic arrangements, and rooms adapted for therapy, which need not be used for tuberculous patients. Of course, such places are only accessible to people of means.

Places like Salzburg, Gmunden and Ischl in Austria, are certainly adapted to render good service to consumptives in well fitted-up houses.

It admits of no doubt that consumptives can be located in winter in mountainous regions, especially patients who have been

weather-hardened by timely application of hydrotherapeutic treatment. Such patients can enjoy in winter, also in cold regions, fresh air, aside from the fact that the sleeping and dwelling apartments can be kept energetically air-pure.

IX.—DUTY OF REPORTING AGAINST HEREDITY.

The increase of physical, intellectual and moral degenerates in modern times, gave rise to the question of what measures to adopt to prevent heredity. The United States have proceeded in this with greatest energy. This need not surprise us. The senile trend, which characterizes many European conditions, is wanting in that virile empire, in which initiative individuals can prevail much easier. Also the multiplicity of State legislation carries with it that original, youthfully vigorous legislation upon the soil of ripened science and advantageous insight could be carried through and applied to actually prevailing conditions. The law of Michigan is most vigorous against the danger of heredity. It enacts that all lunatics, epileptics and criminals convicted three times must be castrated before leaving the hospitals.* Besides this many States forbid patients afflicted with infection and diseases that are easily transmitted, to marry, and Indiana includes in this category sufferers from tuberculosis.

I do not like to postpone a criticism of the legal enactments to the Congress to be held in Madrid, but proceed to it here. What kind of tuberculous patients would rationally be concerned in such a law? Should it, perhaps, include everybody who suffers from a thickening of the apices, where in the sputa the Koch cells have been found and who has suffered once from hemoptysis? All the world agrees that tuberculosis is frequently curable, and every physician knows fathers and mothers who at one time were seriously threatened with consumption, and who, nevertheless, had a healthy progeny. All cases of passed tuberculosis must be, therefore, self-evident, be exempted from every measure of force or prohibition.†

*With all due respect to the legislators of Michigan, I consider the largest part of this law as preposterous. The celebrated law of Michigan concerning the treatment of juvenile and youthful criminals, of course, infuses me with the greatest respect, and even for incorrigible homo-sexuals I have pronounced abstinence, penitentiary or surgery; nevertheless would I warn against imitation, and I hope to be able to state at the Madrid congress my reasons in convincing argument.

†A pronounced example of the injustice and irrationality of such a legal enactment is furnished to us by Oppolzer. He was, as a young physician, seriously consumptive. He cured himself, as he often related, with good Bohemian beer. He got married and in his progeny there is no trace of tuberculosis. I, myself, observed a woman, who after a few rapidly following births, became seriously tuberculous. She was cured and hurried to pass through more pregnancies—17 in all. She and her descendants are healthy and not a trace of consumption.

The prevention of marriage has only one sense in florid consumption.

The marriage obstacles will have an effect with such patients, that in the lower stratas of society the concubinates will increase and the male and female gold fishes will easily circumvent the law.*

For the co-habitation outside of wedlock these laws are of no effect. Extraordinary conditions, however, would grow out of it, if hygienic pursuits would succeed, analogous to the Michigan law, to have castration enforced for tuberculous sufferers. With the prevailing mania to-day for operating, the human family would be decimated. Not even heavily afflicted individuals would justify extreme measures, because cure is not excluded and hereditary transmission is by no means fatal. Hasty play with fate easily leads to tragedies of fate for society.

Most useful it is, when, as in Italy, conviction is carried to the masses that co-habitation with consumptives endangers health, and there is great danger of having sick descendants.

I will mention for the special case, that it is advisable to have a legally sanctioned regulation that every betrothal should confer upon each party, as in case of life insurance, the right to have the other produce a health certificate, and that of physicians who enjoy the confidence of the party to search. Self-understood, the physicians must, for this case, be legally freed from the obligation of guarding professional communications.

This leads us to the proposition advanced by many to discuss the obligation of the physician to report cases of consumption. This legal obligation would be one of the worst mistakes which ever emanated on the part of the physicians. As it is untrue as a general thing, that under favorable hygienic conditions, the intercourse with consumptives is dangerous, then the obligation of reporting might become more fateful.

Think of the danger of causing an unnecessary panic among the people. I have lived to see it immediately after the discovery of Koch, and the premature deduction drawn therefrom, and the bad effects it had.

Let us consider that the obligation to report had only a definite sense of the authorities' procedure to isolate the sick. If at

*Whoever takes an interest in the contraction of marriages among the lower classes, often has the opportunity of witnessing a number of marriage ceremonies at one and the same time, where the majority of the brides are in the last epoch of pregnancy. Should the male criminals, if tuberculous, or the sick mother-brides be prevented from legalizing their marriage? If, however, the circumstance of pregnancy is accepted as an exception from the law, then the people will secure that benefit.

every numbness of the apices, with stertorous noise, or bronchial breathing, and with expectoration with Koch cells, we had to make a report, then numberless teachers, all family servants, clerks in bureaus and in industrial establishments, would lose their bread through the doctrine that intercourse with them is dangerous, is only correct to a slight extent. Not the obligation to report, but the right to report should be conceded to the physician. Reports should be made only in specially dangerous cases. To wit: Might a teacher in a high tuberculous condition become dangerous when scrofulous, anemic, or children with catarrh attend the school? Society, however, in such cases should come up for the full earnings, if we are not to cause greater misery.

We see that a vast field is conceded in legislation to the question of tuberculosis, a law which takes for its object the erection of sanatoriums and the methods to be followed, which seeks the sanitation and supervision of health resorts, the removal of everything that implies danger may become a blessing.—From advance sheets of "Medico-Legal Journal" for June, 1902.

CONSUMPTION CONTRACTED IN COLORADO.

BONNEY ("Medical News," May 24) discusses the statistics as to the indigenous occurrence of tuberculosis in the State and especially in relation to the report of the tuberculosis committee appointed a year or more back by the State society. He considers that the increase of tuberculosis mortality is incident to the increase in population, the unhealthy occupation of a portion of the population in mining, etc., to direct tuberculosis predisposition on the part of those whose parents came to the State suffering from tuberculous infection, and he questions somewhat whether the reference of the disease as being contracted within the State is always correct. He favors compulsory notification and restriction sufficient to the supervision, and the education of the consumptive and the public, establishing detention institutions for the ignorant and vicious who refuse to submit to the necessary sanitary rules, State sanatoria and segregation hospitals for the poor, the regular disinfection of tuberculous infected apartments, prohibition of expectoration, the formation of societies for the study and dissemination of information for the tuberculous and government supervision of public buildings, tenement houses, factories, etc. While not underestimating the possible dangers, he would have the education of the public rather encouraging than otherwise as regards the disease.

MEDICAL EXCERPT.

By T. P. CORBALLY, A.M., M.D.

CHLOROFORM IN CARDIAC CASES.—M. Huchard has given to the Académie de Médecine a statement of the important discussion which he has so felicitously inaugurated ("Le Progrès Médical," May 24, 1902). A cardiac affection, unless it has reached the a systolic stage, does not contra-indicate the use of chloroform. The purity of the chloroform, the skillful practice and the careful attention of the administrator are the really important factors in the tolerance of the anesthetic. The extreme irritating quality of the chloroform may cause special reflex action, and the advisability of a mixed proceeding—bandages of cocaine, injections of morphine—may be associated with chloroform.

The superiority of ether has not been fully demonstrated. In all cases, however, ether is absolutely contra-indicated in which pulmonary affections are found to exist.

It may then be said, while modifying the formula of Seidellat, if the patient is well prepared and subjected to a dose of chloroform carefully administered and attentively watched, he does not incur any risk whatever.

M. Laborde cited cases in physiological experiments in which accidents were prevented by an injection of a mixture of morphine, atropine and sparteine.

M. Le Dentu presented to the Académie ("Gazette Hebdomadaire," May 11, 1902) a new case in chloroform as an anesthetic in cardiac affection. A patient had been operated upon for an abscess, the result of congestion, incision, drainage, etc. The anesthesia was caused with ether without any accident. Two or three months later this man was recovering when one day, during the visit, he died suddenly. The autopsy developed no cause for death, except in the heart, which was found to be dilated in the right cavities with very marked insufficiency of the right auriculo-ventricular valve.

This man, although a case of heart disease, had been anesthetized without any disturbance at the time.

In a former case M. Le Dentu had observed during the operation a sudden death in a woman who presented heart lesions very similar to the former. But this latter case was anesthetized with chloroform.

Was death to be attributed to the chloroform in this latter case, while in the former case the result at the time seemed perfectly satisfactory? M. Le Dentu is not prepared to offer any opinion in the case. However, he remains a firm partisan of ether, which he employs in his daily practice, without anticipating any danger.

PHLEBO-SCLEROSIS OF SUPERFICIAL VEINS OF THE LIMBS.—MM. Souques and Janvier presented to the Société Médicale des Hôpitaux ("Le Progrès Médical," May 24, 1902) a patient, forty years of age, an alcoholic and tuberculous subject, who presented a chronic induration of the superficial veins of the limbs. In the lower limbs the induration attacks the trunk of the internal saphenous from the malleolus as far as the groin, and the external saphenous from the tibio tarsal articulation to papliteal space. The saphenous veins are retracted hard and feel under the finger like a cord; they are uniformly indurated and free from nodes throughout their whole length.

In the superior limbs almost all the superficial venous trunks of the forearm and the arm are hardened and the induration presents the same characteristics as are found in the lower limbs.

This chronic induration of the veins is bilateral and symmetrical. The veins of the abdomen, chest, neck and the head are exempt. There are neither varices, varicellæ, nor hemorrhoids. These changes come on insidiously and have never given rise to any very marked symptoms.

Such cases are rare. Paludism, tuberculosis, saturnism, syphilis, the cachectic conditions and alcoholism are all blamed as causes of the disease. The histological investigations of Letulle have shown that it is a case of lesions differing from the common phlebitis. In any case, however, whatever relation may exist between phlebo-sclerosis and chronic sclerosis, the phlebo-sclerosis forms a separate type of disease clinically and anatomically which may be compared with the progressive arthritis of Friedlander.

FAITS NOUVAUX.—Under this title the "Gazette Hebdomadaire" of May 25, 1902, publishes a statement of the action of iodophile in serous effusions. In the diagnosis of the nature of serous effusions the reaction of iodophile has been carefully investigated by MM. Labrazès and Meuratet and they have arrived at the following facts:

In meningococcic and staphylococcic meningitis the cephalorachidian liquid drawn by lumbar puncture gives the iodophile reaction; it is most frequently the polynuclic neutrophile leuco-

cytes, sometimes overcharged, sometimes not with fatty granulations. In tubercular meningitis, the lymphocytes in very great numbers in the cephalo-rachidian liquid are not iodophiles; the few polynuclear leucocytes which are associated with them may or may not be iodophiles.

The same statements are true of the serous liquids of pleurisy (iodophilic and polyneucleose, pneumococcic, lymphocytose without iodophile, tuberculous).

In symptomatic ascites of atrophic cirrhosis and in the mechanical aseptic effusions a great number of the endothelial cells, united or not very easily recognizable, are iodophiles in different degrees.

In the serous cysts with lymphocytes there is no iodophile.

Thus the investigation of iodophilia can, in some instances, contribute to enlighten us on the nature of an effusion.—Labrazès and Meuratet, Société linnéenne de Bordeaux, May 21, 1902.

Artificial Infant Feeding.—S. A. Visanska ("Pediatrics," Feb. 15, 1902) says that in endeavoring to feed a baby artificially, three important factors are to be borne in mind: First, the quantity of the food; secondly, the quality of the food; thirdly, the individual peculiarities of the child. The writer says that one of the most frequent mistakes made in feeding a baby is that of giving it a much greater quantity of food than it can possibly assimilate, with a result that a child either vomits it or passes it through the bowels in an undigested state.

Regarding the character of food to be given a child, that is its quality, it is evident that the more closely the food resembles mother's milk the more likely it is to agree with the child. The writer says that his experience has taught him that modified cow's milk is the ideal artificial food for feeding infants. He says that the method he has adopted for feeding babies is that of Prof. Seibert, and that is to feed according to the weight and not the age of the child. Visanska says that it is of no advantage to have the milk from one cow; it is, in fact, a distinct disadvantage, for the great difference which exists between milk of different cows makes it impossible to prepare a proper imitation of mother's milk, according to any fixed rules, unless we should have individual cow's milk analyzed in order to determine in just what way the mixture should be made. Besides this, the milk of any cow is subject to variations from time to time, depending upon the nature of the food given it, the health of the animal and other factors.

THE POTATO AS A MEDICINE.—The good results of administering potatoes in certain forms of diabetes are affirmed by a French physician, Dr. Mossé, who states that he has effected cures by this means. "M. Mossé thinks," says the "Revue Scientifique," "that this treatment probably acts by alkalinization of the humors, in the same way as the treatment by the alkaline mineral waters of Vichy; besides this, potatoes contain oxydases, and bring to the tissues ferments favorable to those exudations that are habitually retarded in diabetic patients. The quantity of potatoes that should be taken by the invalid varies from two and one-half to three times that of the bread eaten. . . . But altered potatoes should not be employed; when jellied, they contain sugar; in too warm a medium they begin to sprout and their germination also develops sugar, as well as solanin." The writer remarks that in the spring, when potatoes are scarce and not very good, potato-bread may be used to advantage, although little known. This is prepared by mixing, in proportions varying from one-quarter to one-third, wheat flour with mashed potatoes. This food tastes enough like ordinary bread to make it palatable to persons who feel that they must have plenty of the latter. The use of the potato instead of bread deprives the body of certain useful phosphates that are contained in the latter; but this objection may be removed, we are told, by adding eggs to the diet, especially the yolks.

PUTREFACTIVE PROCESSES.—As an antiferment, to correct disorders of digestion, and to counteract the intestinal putrefactive processes in the summer diarrhœas of children, Listerine possesses great advantage over other antiseptics in that it may be administered freely, being non-toxic, non-irritant and non-escharotic; furthermore, its genial compatibility with syrups, elixirs and other standard remedies of the Materia Medica, renders it an acceptable and efficient agent in the treatment of diseases produced by the fermentation of food, the decomposition of organic matter, the endo-development of fetid gases, and the presence or attack of low forms of microzoic life. An interesting pamphlet relating to the treatment of diseases of this character may be had upon application to the manufacturers of Listerine, Lambert Pharmacal Co., St. Louis.

ANTISEPTIC THERMOMETER CASE.

The question of preventing infection through the use of the clinical thermometer has long engaged the attention of physicians,

for the danger of its use, however careful the user, has been so great in the minds of some as to actually preclude it. The simple device here depicted effectually overcomes the danger, for it is a self-sterilizer while it is idle, so that it is always ready for a new case.

The illustration gives a fair idea of its construction. It measures, complete, about five inches in length, and the diameter is so slightly increased over that of the ordinary thermometer case as to make it scarcely noticeable. The lower part, which holds the antiseptic solution, is a tube made of heavy glass, especially annealed to withstand hard knocks. The bottom of this tube is closed by a metal screw-cap, which hermetically seals the end and protects it against breakage. The upper end of the tube is closed by a diaphragm held in position by a metal neck-band, to which is attached a safety chain for fastening the case securely to the vest. This diaphragm is so constructed as to admit of inserting the thermometer into the antiseptic solution, where it may be carried without danger of leakage. The thermometer is secured by rubber packing to a metal cap, which screws into the neck band, making the apparatus complete.

In using this appliance, the glass tube is nearly filled with an antiseptic solution, such as corrosive sublimate, 1-500. This is done by inverting the case and unscrewing the bottom cap, when the solution may be introduced without disturbing the thermometer, and the cap may then be replaced. It may then be safely carried in the pocket, since the toughness of the glass insures it against breakage and the diaphragm prevents leakage.

To remove the thermometer from the case, it is only necessary to unscrew the cap, as shown in the cut. On withdrawal of the thermometer the diaphragm completely closes so that the antiseptic solution cannot run out, even though the case be inverted. The thermometer is returned to the case with equal ease.

The instrument seems admirably adapted to its purpose. It is manufactured by the Norwich Pharmacal Co., Norwich, N. Y.

NEIGHBORLY: Rusty Rufus—De lady in de next house give me a piece of home-made cake. Won't you give me somethin', too? Mrs. Spiteful—Certainly! Here's a pepsin tablet.—"Judge."

EDITOR'S TABLE.

SANITARIAN, JULY, 1902.

☞All correspondence and exchanges, and all publications for review, should be addressed to the editor, Dr. A. N. Bell, 337 Clinton St., Brooklyn, N. Y.

REFILTRATION OF BROOKLYN WATER SUPPLY REQUIRED.

Readers of THE SANITARIAN know, by its frequent reference to the subject, that the water supply of Brooklyn, primarily, is essentially filtered water, through clean sand of an average thickness of about twenty feet, resting upon an impermeable sub-soil hard pan, covering well nigh the whole surface of Long Island, from which it flows at the bottom into numerous natural ponds and rivulets. From these sources and hundreds of driven wells the water is drawn by conduits into water-supply reservoirs and thence distributed. But so improvident and neglectful the civil authorities and water purveyors have been that the reservoirs have become so dangerously foul by the inflow of village sewage and farm-yard filth as to require refiltration. At a recent special meeting of the Kings County Medical Society to consider the subject, the Committee on Public Health reported:

"The conditions which obtain on the Hempstead section of Brooklyn's watershed are absolutely certain to lead to its pollution. We are restricted by an absurd law to seek our supply from the most densely populated portion of the Long Island watershed. The principal feeder of the Hempstead reservoir, known as Horse Brook, starts north of the village of Hempstead, passes, uncovered, through that town and its suburbs and after being reinforced by numerous springs, reaches the reservoir. Hempstead is a village of 4,800 population and Horse Brook, running through the most closely built and poorest section of the town, is lined on either side with houses whose outhouses are in many instances within fifty feet of the stream. Under these conditions no amount of patrol or vigilance can prevent the pollution of the stream. In 1897 the Brooklyn Health Department removed two cases of typhoid fever from these houses to Brooklyn and treated them at the city's expense rather than have them in such close proximity to the stream. If we cannot keep undesirable elements out of the water, the only alternative is to remove them before the water

reaches the consumer, and to this end we wish to appeal to you in behalf of the commissioner. Sand filtration as a means of water purification is no longer an experiment. As practiced both here and in Europe, it removes promptly and certainly a very large proportion of the bacteria, probably under all proper conditions over 99 per cent. The places using filtered water have the general extremely low death rates from water-borne diseases. As a concluding argument, we think we are safe in the statement that sand filtration gives the maximum of efficiency with the minimum of cost."

And, as a warning, submitted the following statement of facts and consequences in relation with similar conditions elsewhere:

"It is the consensus of opinion among sanitarians throughout the world that certain diseases among which may be mentioned cholera, typhoid fever and certain forms of dysentery, are disseminated solely by means of contaminated food and drink. The manner of such contamination is the introduction of the discharges from patients suffering from these diseases. It is obvious that if the sewage of a community can gain access to a water supply, the discharges from patients suffering from typhoid fever in that community can also gain access to the water supply. A pure water supply is probably the greatest of all municipal necessities. Up to the year 1891 large cities, both here and abroad, continued to drink raw surface and river water because it was handy, cheap and they were indifferent to its dangers. In 1892 there appeared an epidemic of cholera in Hamburg, which used the unfiltered water of the Elbe. This outbreak caused the death of 8,605 persons and did incalculable damage to the business interests of the city. The health authorities found the cause to be the polluted water supply. Filters were built and the plant was in operation in 1895. The death rate since the introduction of the filtered water has been lower than ever before in the history of the city. Now no city in the German Empire is allowed to use surface or river water without filtration.

"In Plymouth, Pa., in 1885 there were 1,104 cases of typhoid fever and 114 deaths in a population of 8,000, as the result of the discharge of the dejecta from a single patient into the water of a relatively small impounding reservoir. The cost of this epidemic was calculated with unusual care. The care of the sick cost in cash $76,100.17, and the loss of wages for those who recovered amounted to $30,020.08. The 114 persons who died were earning, before their sickness, at the rate of $18,419.52 annually."

An appropriation has been voted to construct a filter bed, but up to the time of this writing the work has not begun. Meanwhile the reservoirs are leaking and the season of scarcity approaching, as also in the Borough of the Bronx. The culvert basins are choking and stinking, as also the street gutters, in portions of both of these boroughs most thickly populated, for the need of flushing.

Why, in the name of all that is convenient and healthful, salt water is not utilized to sprinkle the streets and flush the gutters, and keep the culverts trapped, is, apparently, because it would detract from the force of the continued outcry of the engineers in charge about the scarcity of water and the need of greater engineering enterprise for an additional water supply from distant sources.

A FURTHER OBJECT LESSON IN VACCINATION.

It will be remembered ("Boston Medical and Surgical Journal," June 5) that within a few months a Dr. Immanuel Pfeiffer made himself notorious and incidentally helped the cause of vaccination in this community by voluntarily exposing himself to smallpox without being previously vaccinated. He contracted the disease, but has lived to reiterate his faith in the non-efficiency of vaccination. This attitude was not unexpected, and is of small importance one way or the other. The world at large has taken the event as another strong indication of the value of vaccination in preventing smallpox. Whatever Dr. Pfeiffer personally may think, the fact remains that vaccination received a new impetus as soon as the circumstances of his illness became generally known through the daily papers.

It is rather interesting and at least suggestive that within a week public announcement has been made that two physicians, professing the homœopathic faith and a violent disbelief in vaccination, have been taken ill with smallpox after exposure in the course of their practices. One of these practitioners, a man well known in a neighboring town, has done what in his small power lay to encourage the cause of the anti-vaccinationists, by certain utterances expressing his views and printed in one of Boston's most widely read papers. These utterances no doubt carried more weight than those of Dr. Pfeiffer, already alluded to, and therefore the result should be even more influential in directing the stream of opposition to vaccination into a different and more rational channel. We are, of course, quite aware that even arguments of this apparently convincing character do not always con-

vince or even influence the bigoted, but there is a great mass of the wavering who will take the lesson to heart. It is certainly a striking fact that the physicians in charge of the smallpox hospitals in this city have one and all passed through the epidemic unscathed. It is not to be supposed that the physical condition of these overworked men was such as to afford them an immunity such as our anti-vaccination friends speak of. Every reasonable person will put the credit where it properly belongs — on the immunizing properties of vaccine virus. We regret the illness of any one on general principles, but we confess there is a little balm to our feelings when we consider how unjustifiably these victims of their own limited point of view have brought their troubles upon themselves.

A YEAR OF DISASTERS.

Well nigh 100,000 souls have been swept into eternity since the beginning of the present year by a remarkable series of disasters, according to the "Chicago Tribune," which keeps a record of such things. The list covered by the "Tribune" in the paragraphs quoted below includes only those disasters occurring before May 20. Before its issue of that day was twelve hours old a waterspout devastated the suburbs of Covington, Ky., claiming six victims. Since then two mining disasters have claimed 200 more. To quote:

" 'One wo doth tread upon another's heel, so fast they follow.' Public interest in the recent disasters among the West Indian islands has hardly begun to abate before reports come of others which, but for the exceptional magnitude of the former, would be regarded as unusual in their fatality. The cyclone which struck the little town of Goliad, Texas, on Sunday not only nearly destroyed the place, but left in its wake ninety dead and over one hundred injured—an unusual cyclone record for a single locality. The mine explosion at Coal Creek, Tenn., is the worst of the year, not one of the one hundred and fifty men employed in the mine escaping. Simultaneously with these events comes the news of a terrible hurricane which swept over the Province of Scinde, in British India, carrying away houses, bridges and embankments, and washing away miles of railroad tracks. The few words, 'many lives were lost,' are significant.

"The prophets who predicted that 1902 would be a year of disasters were correct. They have been in the habit of uttering these prophecies year after year without result, but this year they have been verified, though but five months have passed. If one only

prophesies patiently and persistently, he will assuredly be right, as the almanac in the country which had the legend, 'About this time expect rain.' Nature has not been so busy with her forces of devastation for many years past as she has been during the first five months of the present year. Volcanic eruptions and earthquakes have destroyed 48,450 lives, storms 704, tornadoes 416, cyclones 220, floods 333, avalanches 228, tidal waves 103, snow-slides 39, and waterspouts 12, a total of 50,505 lives destroyed by Nature's elemental disturbances. If to this were added the lives lost by agencies over which man has more or less control, such as fires, mine disasters, explosions, railroad accidents and vessel wrecks, it would be increased to over 60,000, and this takes no account of individual lives lost in this country, which would bring the grand total up to about 100,000 lives lost in the short period of five months.

"In the presence of these great natural convulsions man is powerless and probably always will be. As to the disasters occasioned by human ignorance or carelessness or neglect, the despair of the situation is that the catastrophe of to-day is a sensation for the day, and to-morrow is generally forgotten. It has its lessons, but it is not often read. Even if read, it is rarely heeded."

DECEPTIVE APPEARANCES.

Coroner Jackson, New York, is quoted as saying, after he had examined the poolroom employé who was wounded by one of the District Attorney's detectives: "It is a shame that a big, fine-looking fellow like this should have been shot!" Is it not, rather, a shame that a big, fine-looking fellow like this, who presumably had the intelligence as he had the strength to earn an honest living, should have chosen to be a habitual and professional lawbreaker; should have made desperate criminals his daily associates, and should have invited, if not necessitated, the fate he met by his endeavors to escape arrest? The coroner, himself a representative of the law, might well have asked these questions, instead of making the exclamation he did. Nobody, in office or out of it, is under any obligation to approve of Mr. Jerome and all his works—and workers; but to let disapproval of him and them take the shape of maudlin sympathy for a man like McCoy is not admirable in a coroner, a police magistrate or a newspaper. The shooting of McCoy was justifiable or it was unjustifiable. Whether it was the one or the other will be revealed in due course, and the decision will not be, and should not be, influenced in the

slightest degree either by the bigness or the beauty of the man who was shot. The deed would have been just as good or just as bad, as the future may reveal, if he had been as little and ugly as he was large and handsome.—"New York Sun."

BORIC ACID IN MEAT.

By recent report from Berlin, Prof. Heinrich Kionka, who is attached to the imperial Health Office at Jena, and who was the principal expert upon whose conclusions the Bundesrath relied when it issued the decree against the employment of boracic acid in the preservation of meat, passed an exceedingly uncomfortable hour in the course of the trial at Luenseberg, Prussia, for certain dealers in meat who had sold meat preserved with salts.

PATENT MEDICINE
AUG 6 1908
LIBRARY

The court at Luenseberg summoned Prof. Liebreich and Dr. Lebbin, official chemists of the Berlin law courts, to give expert testimony.

Prof. Liebreich and Dr. Lebbin questioned Prof. Kionka with regard to his experiments in feeding borax to animals. Dr. Lebbin demonstrated that Prof. Kionka had made mathematical errors in his analysis made in connection with the use of impure chemicals, and that he had failed to analyze the secretions. Prof. Liebreich controverted Prof. Kionka's assumption that chemicals always had the same effect upon man as they did upon animals.

The cases against the meat dealers were dismissed by the court.

Commenting upon this matter, the "Fleicher Zeitung" says that Prof. Kionka has been thoroughly discredited, and demands the reopening of the controversy which preceded the prohibition of the use of borax.

NAVAL MEDICAL SERVICE FILLED.

With the recent appointment of Drs. E. M. Brown, H. F. Strine, J. P. Traynor and R. E. Hoyt to be assistant surgeons in the Navy, all vacancies in the naval medical service have been filled. This is the first time since the Civil War that such vacancies have not existed. That they are filled at the present time is due to the fact that about two years ago medical men in the Navy were given the same status as was then enjoyed by medical officers of the Army, and under the improved conditions a larger number of better equipped young medical men have presented themselves for examination. This is an excellent illustration of the fact that the character of the professional qualifications in candidates for positions in the Government services varies directly with the rewards and emoluments offered.

RETIREMENT OF SURGEON-GENERAL G. M. STERNBERG.

After more than forty years' exceptionally active and honorable service through all the grades of his corps, on reaching the army age limit of sixty-four years, Surgeon-General Sternberg has been retired. George Miller Sternberg was born June 8, 1838, at Hartwick Seminary, Otsego County, N. Y., and educated at the same place, commencing the study of medicine in 1857 at Cooperstown, under Dr. Horace Lathrop. He attended two courses of lectures at the College of Physicians and Surgeons, New York, and was graduated in 1860. He was appointed assistant surgeon in the army May 31, 1861. A mere catalogue of his activities as member of numerous commissions, special investigations, etc., in relation with his otherwise almost continuous service in the field, on the frontier or in forts, and of his achievements in scientific work the while, would fill several pages.

He was appointed surgeon-general, with the rank of brigadier-general, in 1893. His published works, chiefly "Bacteria-Malaria and Malarial Diseases," "Manual of Bacteriology" and "Immunity, Protective Inoculations and Serum Therapy," are everywhere recognized as authoritative and necessary to the votaries of preventive medicine.

SURGEON-GENERAL WILLIAM H. FORWOOD,

the recently appointed successor to Surgeon-General Sternberg, was born in Maryland and was commissioned assistant surgeon in the regular army in 1860. By 1865 he had risen to the rank of captain and assistant surgeon; he became lieutenant-colonel surgeon in 1889, and colonel assistant surgeon-general in 1895. Dr. Forwood was in charge of the Montauk Hospital at the termination of the Spanish-American War, and the success that attended the efforts to reinstate the health of the soldiers returned from Cuba was in a large measure due to his judgment and experience.

STERILIZED WATER FOR TROOPS.

British soldiers are to be provided with boiled water for drinking, says "The Hospital," May 10: "The water will first of all be clarified by a kind of rough filtration through charcoal containing a certain amount of potassium permanganate and will then be 'sterilized' either by filtration or by heat, after which it will be distributed to the troops by means of water-carts reserved for 'safe' water only. So far as the method of sterilization by boiling is concerned, the War Office has adopted a form of apparatus which

is very economical of heat, being so arranged that the incoming water absorbs the heat from that which has been through the boiler, and this so effectually that although the water is raised to boiling temperature it flows out only 4½° Fahr. hotter than it entered the apparatus. By this process active pathogenic organisms are destroyed, although a few of such as happen to be present in the form of spores may escape. . . . Having got the apparatus, the question now is, What will the British Army do with it? This depends, not upon the Medical Department, but upon the extent to which commanding officers can be brought to see the necessity of insisting upon boiled water alone being used for drinking purposes."

DETERIORATION IN PHYSIQUE.—The frequent assertion that the inhabitants of towns deteriorate in physique has been corroborated by the recruiting returns for Manchester, where three years ago, among 11,000 men examined, 3,000 were found fit for service; in 1900, of 12,235 men examined, only 4,030 were eligible to service; in 1901, of 11,896 applicants, only 3,076 were acceptable. Although the authorities were anxious to recruit as many as possible, those rejected were so poorly developed it was impossible to take them; many of the applicants were youths of eighteen or nineteen, and were average specimens of the inhabitants of the poorer parts of the city. The standard is reported lower than ever before, and the officers attribute the narrow chests and want of physique to the habit of cigarette smoking which prevails.

LIFE-SAVING CONGRESS AT NANTES.—Under date of March 1, 1902, Ambassador Porter, of Paris, sends copy and translation of a letter received from the Society of Life Savers of Brittany, relative to an international congress of life saving, preservation of health, and maritime security which will take place at Nantes, July 31 to August 4, 1902, under the honorary presidency of the Minister of the Marine. The hope is expressed that the Government of the United States will be represented. The congress will consider life saving in water and from fire, piloting in fog, life saving on board steamships, moral and physical development of sailors and fishermen, etc.

THE CRAIG COLONY PRIZE of $200, open to universal competition, is offered for the most original unpublished contribution to the pathology and treatment of epilepsy. The essay must be writ-

ten in English and accompanied by a sealed envelope enclosing the author's name and address and bearing on its outside a motto or device which is to be inscribed also upon the essay. The award will be made at the annual meeting of the Board of Managers of the Craig Colony, October 14, 1902, on the recommendation of the committee of three members of the New York Neurological Society, by whom all papers will be examined. Manuscripts should be sent to Dr. Frederick Peterson, 4 West Fiftieth Street, New York City, on or before September 30, 1902. The prize essay becomes the property of the Craig Colony, and will be published in its medical reports.

THE PROBLEM OF COLORADO'S BURDEN.

How to provide suitable, healthful quarters for the host of invalid and semi-invalid young men coming daily to the Rocky Mountain region, introduced from all quarters of this, and some other lands, has become a serious problem.

As a partial solution to the problem brought by the large number of young men seeking Colorado for climatic reasons the idea of the Association Health Farm was originated. The plan included the purchase of land and its sanitary equipment, so that young men needing outdoor life, cheerful associations, wholesome food and pleasant employment could be given these. The very hope which such treatment would inspire in the breast of a disheartened man would act as a tonic and tissue builder, the like of which no earthly chemist could compound.

No sooner was this plan outlined, committed to writing, and published for the first time in the initial Sheldon Edition of the "Topeka Capital" than "The Outlook" of March 31, 1900, voluntarily endorsed it in very strong terms. From reading this editorial Dr. Edward P. George, of Hanover, Germany, became interested, instituting a correspondence of inquiry which resulted in a cablegram contributing outright to this project the two lots and improvements thereon, located at 2430 Walnut Street, Denver. With the impetus of this first gift as an incentive, a personal appeal was made to association friends in the East and in Denver, which resulted in an additional offering of $4,000 from the few cities visited.

The Denver property was sold on May 12, 1902, for $5,000, and $1,500 of this amount added to the fund in hand for the farm and its equipment, while $3,500 was placed at interest as an endowment fund for current expenses.

After most careful search, a very desirable, unimproved sixty-acre tract of land, six miles west of Denver, was purchased with the funds mentioned. One-third of this tract is above irrigation, and particularly well suited for the location of buildings. The location is advantageous from many view points. The tract is located directly west of Denver and half way between the "Queen City of the Plains" and Golden, a small town at the base of the Rocky Mountain range, on the direct line of the Denver, Lakewood and Golden Railway, the train stopping at the corner of the tract. It is only two and one-half miles from the Larimer street car line, which line will shortly be extended. This condition will bring the farm residents within reach of the city centre whenever necessary.

By reason of the nearness of the location, the best medical attention can be readily secured. A physician can visit the farm and return to his city practice without serious loss of time. The best physicians of Colorado are deeply interested in the Association Health Farm and will co-operate in every way possible. A very great advantage arises from the fact that such surplus products of the farm as will be salable will be within easy reach of a good market. The convenience of the location will also be appreciated by friends of the farm residents and people from the East who may wish to visit the farm when passing through Denver.

The farm residents will use, for sleeping purposes, ten cottages, which are deemed the most desirable and healthful for men with incipient lung trouble. Each one will contain a fireplace and everything necessary both for comfort and convenience. The Pittsburg Young Men's Christian Association has sent the money for the first one to be erected. It will be known as the Pittsburg Cottage. The sum sent by the Pittsburg Association is ample, being $170.

If our rich men and women desire a worthy monument, what more practical one could be erected than a tent cottage (suitably endowed), bearing the name of the giver, under the friendly shelter of which many a young man may be afforded the only condition under which restoration to health and continued usefulness is possible. While large amounts are being given to libraries, colleges and art galleries, we bespeak for this work the consideration which it merits.

Employment can be given to many of the men, but will not be guaranteed until the physical condition of the applicant is fully understood. No one will be required to work, but for all work done

by residents credit will be given. By this method of voluntary work those needing absolute rest will have no lack of care.

The terms for admission to the Association Farm cannot be determined accurately until the equipment is secured and in place. The plan of the committee involves the charging each resident a moderate but definite sum for tent cottage, meals, laundry and other privileges of the settlement.

As no debt can be incurred for this much-needed farm, at least $5,000 more will be necessary at once, in order to drill the well and erect the necessary buildings. Whether the farm can ever be made fully self-sustaining experience only can determine. For the present friends who believe in the proposal must be found to contribute the equipment and carry the work through the experimental period.

Parties interested may secure further information by corresponding directly with the secretary of the State organization of the Young Men's Christian Associations of Colorado, W. M. Danner, 1119 Ogden Street, Denver, Col., or with the International Trust Company, Denver, Col.

OBITUARY.

DR. WILLIAM ARMISTEAD NELSON died June 5, 1902, at the residence of his son-in-law, Rudolph P. Miller, 141 East Fortieth Street. He was a descendant of the Nelson family of Virginia, prominent in Revolutionary times. Dr. Nelson's grandfather was Col. William Nelson, who took an active part in the siege of Yorktown. His great-grandfather was Thomas Nelson, Secretary of the Virginia Council, whose house at Yorktown was the one used by Cornwallis as his headquarters and totally destroyed by the American shells. Gov. Nelson, the signer of the Declaration of Independence, was a great-uncle of Dr. Nelson.

Dr. Nelson was born at Fredericksburg in 1817. He studied medicine at the University of Pennsylvania, where he took his degree in 1839. He was soon appointed as Assistant Surgeon to the United States Navy, and accompanied Commodore Perry on his expedition to Japan. In 1854 he was appointed Surgeon. He resigned shortly before the Civil War, and on the outbreak of that conflict joined the Confederate Army as Surgeon, serving at Yorktown, Richmond and in Louisiana. After the war he moved to Missouri, where he practiced medicine for many years. He was married in 1846 to Mary Robinson Moncure, and was a cousin of Thomas Nelson Page.

THE AMERICAN CONGRESS OF TUBERCULOSIS.

The third annual meeting was held, as per announcement, at the Hotel Majestic, New York, June 2-4, 1902.

Delegates were present from most of the States and Territories and a number of representatives of Canada, Mexico and Central and South American republics. The United States Government was represented by officers of the army, navy and Marine Hospital Service. Besides a long list of papers on the programme by delegates and others present, there were a number from abroad, by authors who could not conveniently be present, to be read by proxy. It is our purpose to publish hereafter a select number of them. Attention is invited to the one particularly apropos to the outset, "The Tuberculosis Question," by Dr. Moritz Benedikt, of Vienna, in extenso, on other pages of this number.

The Congress was called to order and a brief opening address made by A. N. BELL, M. D., Honorary President, as follows:

MEMBERS OF THE AMERICAN CONGRESS OF TUBERCULOSIS:

Your record in relation with the purpose of this Congress and your presence, as the chosen representatives by executive authority, or of scientific organizations interested in the same purpose, from every section of this country and many from neighboring countries, precludes the need of any explanatory intentions.

It is within the recollection of some of us that about fifty years ago Minnesota was the Mecca par excellence of consumptives, or of those predisposed to it in this country, and, indeed, much resorted to by those alike affected from foreign countries. Time and increase of population have so nearly dissipated the thought of such favorable conditions that Minnesota has ceased to be mentioned as a favorable resort. Meanwhile Minnesota has been supplanted by Colorado, but since the repeated demonstrations during the last decade that the atmosphere of high altitudes is no less congenial to the cultivation of tubercle bacilli than that of sea levels, and the increase of population in Colorado, the fame of that State as a specially beneficial resort for consumptives is rapidly falling to the same level as Minnesota. New Mexico is now in the ascendency. That region is, in its relation to tubercular subjects pretty much as Colorado was thirty years ago, and Minnesota thirty years earlier, as yet but sparsely populated and most of the people now there, especially the consumptives, are under particularly favorable regimen—the auspices of the army and Marine

Hospital Service Sanatoria, and, for the while, tubercle bacilli are in abatement; but, nevertheless, like the indubitable house-fly, sufficiently manifest to show their universal companionship with man. Tubercle bacilli are, indeed, everywhere, as they seem to have been always, an antagonizing force to man, against which it is his privilege and power to contend.

It is not in the nature of mankind that such an enemy to his race should continue to be broadcast, or even to exist anywhere within the scope of his power of intellectual development to contend against it. How the privileges and powers with which we are endowed may be most effectually exercised against tubercle bacilli is the question to this Congress. Its field of view, as represented by your presence and the scope of your points of attack, as indicated by your record, is co-extensive with the human race. It demands the uttermost energy of intellectual resources and physical force against the most deadly foe of mankind.

It becomes my most agreeable duty to introduce to you the President of the Medico-Legal Society of New York, Mr. Clark Bell, of this city, under the auspices of which society this Congress was organized and has been successfully planted, and meets with us to-day in co-operation.

Mr. Clark Bell is also the secretary of the Congress, and we are indebted to him in the main for the labor that has brought us together, and for the papers and discussions which are about to be presented.

It is also largely due to Mr. Bell's energy and forethought that the sympathetic action of the Government of the United States has been lent to our endeavor, resulting in so large an interest in other countries.

ADDRESS OF WELCOME.

By CLARK BELL, ESQ., LL. D.,
President of the Medico-Legal Society.

To the Members of the American Congress of Tuberculosis and the Delegates who have been named as the Representatives of Foreign Governments, situated on the Western Hemisphere and dwelling upon the continents of North and South America, whether representing the Latin American Republics on our continent, or in South America, or the subjects of His Majesty King Edward VII of England at the North, it becomes a very pleasant

and agreeable duty to welcome you here in the chief and metropolitan city of the American people.

To that large and imposing array of eminent names that have been selected by so large a number of the governors of the States of the American Union; to those men who have been named as delegates by the State medical societies and other bodies in our country, I take a peculiar pleasure, in the name of the Medico-Legal Society, which I have the honor to represent, to meet you in this place and at this hour, to co-operate with our best efforts in this most important struggle, which may well be called "A Legal Struggle with Tuberculosis."

I repeat here what I had the honor to state in my inaugural address as president of the body I represent, some sentences pertinent to this occasion and this hour.

THE LEGAL STRUGGLE WITH TUBERCULOSIS.

Since the organization of the Medico-Legal Society, indeed since the beginning of the last century, no such momentous question in forensic medicine has ever been presented to the general judgment and verdict of the professions of law and of medicine as the one with which now all the civilized nations of the world are confronted, and are grappling, in the question of legislation for its prevention, and to arrest its spread. How far can the ravages of consumption be arrested by legislation? Can any legal enactments or regulations sanctioned by law arrest its devastating march upon, and its terrible destruction of, human life?

It is the most momentous question of the hour, and last year our effort was in inaugurating, organizing and rallying all the forces at our command upon this supreme question of medical jurisprudence.

THE AMERICAN CONGRESS OF TUBERCULOSIS.

While there had been an attempt to enlist the medical profession in the issue, in 1900, the labors of this society were initial and tentative, and only originated as a question of forensic medicine, which did not so deeply interest medical men outside the Medico-Legal Society as it should have done; but the session of the American Congress of 1901, at the Hotel Majestic, on May 15 and 16, 1901, was indeed splendidly successful in the organization of and the real inauguration of a superb movement, international in scope and purpose, and based on the co-operation of not only the American States of our American Union, but on every State,

province and country in the United States of America, in Mexico and in the South and Central American republics and in the Dominion of Canada.

This meeting is the fruit of great labor, to interest and arouse a public sentiment in every portion of our country, and in every country on the Western American Continents, in this great struggle.

A glance at the programme of this Congress and of the list of men holding high official positions in our own and all these countries, who have united with it, and their letters, will show the deep interest everywhere felt in the success of the labors with which this body has charged itself.

It has resolved itself into a campaign of education, not only of the masses of the people of all these countries, but of both the legal and medical professions in the great problems presented in the conflict that is impending.

I wish to avail myself of this moment, in behalf of this body, to thank the Government of the United States for that praiseworthy action in sympathy with our efforts, which it has so promptly and cheerfully given, in complying with our request, and that its sympathy has been made manifest to those governments we sought to interest in our endeavors.

I deem it one of the most gratifying features of our labor, and I desire to place on the record of this body the letters of the State Department of the American Government, and to express to the American Secretary of State the great pleasure which the action of the Government of the United States of America has aroused in our official boards.

The letter relating to the Latin American republics was as follows:

"Department of State, Washington.

"April 4, 1902.

"Clark Bell, Esq., Secretary American Congress of Tuberculosis, 39 Broadway, New York City:

"Sir—I have to acknowledge the receipt of your letters of the 25th and 28th ultimo, in regard to the session of the American Congress of Tuberculosis, which is to be held at the Majestic Hotel, in New York City, in May next.

"In compliance with the request which you make, the Ambassador to Mexico, and the Ministers to the Central and South American States, have been instructed to express to those governments the pleasure with which that of the United States would learn that

they found it convenient to be represented in the Congress. I am, sir, your obedient servant, DAVID J. HILL,

"Assistant Secretary."

That relating to the Canadas was as follows:

"Department of State, Washington.

"April 10, 1902.

"Clark Bell, Esq., Secretary and Treasurer American Congress of Tuberculosis, 39 Broadway, New York City:

"Sir—I have to acknowledge the receipt of your letter of the 5th instant and to inform you that, in compliance with the request therein made, the British Ambassador has been asked to make known to the governments of Canada and Newfoundland the value which the American Congress of Tuberculosis sets upon representation by those governments at the forthcoming session of the Congress at New York City in May next, and the hope of this Government that they may find it to their interest to be represented by delegates. I am, sir, your obedient servant,

"DAVID J. HILL,

"Assistant Secretary."

The dates of these letters and the great distances some of the South American countries are from us left the time far too short to communicate with and receive replies in time for even our adjourned session.

The government and people of the Dominion of Canada were fully aroused to the necessity of action, and the Canadian members of our body have been among the most active and zealous of the officers of this Congress during the work of the past year.

It becomes one of the most agreeable duties with which I am charged to introduce to you the president of this body, chosen at its last meeting, a gentleman of high position and prominence in the medical profession in our country, one who has served for years as secretary of the State Board of Heath of his State, and who since his election as our president has been elected president of the American Public Health Association, who will now pronounce his presidential address, Dr. Henry D. Holton, of Brattleboro, Vt.

Dr. Holton's address will appear hereafter.

MORTALITY AND MORBIDITY REPORTS AND REVIEWS.

NEW YORK.—Twenty-first Annual Report of the State Board of Health for the year 1900. Pp. viii-579 and volume of maps. It comprehends eighteen plans of village sewage disposal works initiated and approved of and seven completed during the year; four special investigations concerning alleged pollution of water supplies; instruction to local boards of health on numerous complaints and queries with regard to the abatement of nuisances and measures for the restriction of epidemic diseases. The work of the chemical laboratory comprises the analyses of and reports on fifty samples of drinking water furnished by local boards of health; several samples of food, with special reference to coloring matters, were investigated, but through lack of funds available for the purpose it was not possible to carry on any systematic inspection of foods, drugs, liquors and illuminating oils as required by law.

"Some 160,000 certificates of births, marriages and deaths have been received for record and filing. While the board is reasonably sure of securing records of most of the deaths occurring in the State by reason of the law prohibiting the burial or removal of a body until a certificate of death has been presented to the local board of health and a permit has been issued thereon for the burial or removal of the dead body, there seems to be a laxity on the part of clergymen and physicians to report marriages and births to the boards of health of the municipalities in which the events occur."

The sanitary condition of the State, as indicated by the monthly bulletins appended—from which abstracts were published monthly in THE SANITARIAN—is summed up, as it was in the December Bulletin of 1900 and abstracted in THE SANITARIAN, Vol. 46, page 256.

The State is divided into sanitary districts as follows: Maritime District: Includes New York, Brooklyn, Long Island, Staten Island and Westchester County. Hudson Valley District: All the counties on either side of the Hudson River, except Westchester, to and including Albany and Rensselaer. Adirondack and Northern District: The northern section of the State—the counties of Washington, Warren, Hamilton, Essex, Clinton, Franklin, St. Lawrence, Jefferson and Lewis. Mohawk Valley District: Schenectady, Schoharie, Saratoga, Montgomery, Fulton, Herkimer and Oneida counties. Southern Tier District: The seven

counties along the southern border of the State. East Central District: Sullivan, Delaware, Otsego, Madison, Chenango, Onondaga and Cortland counties. West Central District: Cayuga, Tompkins, Seneca, Schuyler, Ontario, Yates, Livingston, Genesee and Wyoming counties. Lake Ontario and Western District: Oswego, Wayne, Monroe, Orleans, Niagara and Erie counties.

Bulletin for April, 1902: Population, 7,467,050; total deaths, 10,772.

Maritime District: Death rate, 19.1; per cent. of deaths under five years, 26.6; per cent. from zymotic diseases, 13.5; from typhoid, 5; scarlet fever, 20; diphtheria and croup, 33; diarrhœal diseases, 30; consumption, 112; acute respiratory diseases, 185.

Hudson Valley: Death rate, 16.8; per cent. of deaths under five years, 16.7; per cent. from zymotic diseases, 6.5; from typhoid, 25; scarlet fever, 6; diphtheria and croup, 10; diarrhœal diseases, 12; consumption, 128; acute respiratory diseases, 145.

Adirondack and Northern: Death rate, 14.0; per cent. of deaths under five years, 17.1; per cent. from zymotic diseases, 7.0; from typhoid, 11; scarlet fever, 13; diphtheria and croup, 13; diarrhœal diseases, 5; consumption, 106; acute respiratory diseases, 90.

Mohawk Valley: Death rate, 16.0; per cent. of deaths under five years, 17.2; per cent. from zymotic diseases, 6.0; from typhoid, 15; scarlet fever, 7; diphtheria and croup, 18; diarrhœal diseases, 7; consumption, 93; acute respiratory diseases, 105.

Southern Tier: Death rate, 14.5; per cent. of deaths under five years, 18.0; per cent. from zymotic diseases, 5.0; from typhoid, 16; scarlet fever, 2; diphtheria and croup, 9; diarrhœal diseases, 8; consumption, 100; acute respiratory diseases, 130.

East Central: Death rate, 16.0; per cent. of death under five years, 13.8; per cent. from zymotic diseases, 4.2; from typhoid, 4; scarlet fever, 2; diphtheria and croup, 12; diarrhœal diseases, 10; consumption, 92; acute respiratory diseases, 100.

West Central: Death rate, 14.5; per cent. of deaths under five years, 10.0; per cent. from zymotic diseases, 3.0; from typhoid, 8; diphtheria and croup, 3; consumption, 110; acute respiratory diseases, 100.

Lake Ontario and Western: Death rate, 14.6; per cent. of deaths under five years, 20.0; per cent. from zymotic diseases, 8.0; from typhoid, 17; scarlet fever, 1; diphtheria and croup, 17; diarrhœal diseases, 17; consumption, 77; acute respiratory diseases, 140.

Entire State: Death rate, 17.5; per cent. of deaths under five

years, 22.5; per cent. from zymotic diseases, 10.0; from typhoid, 9; scarlet fever, 13; diphtheria and croup, 25; diarrhœal diseases, 22; consumption, 107; acute respiratory diseases, 165.

From smallpox there were 61 deaths: in the Maritime District, 57; Hudson Valley, 3; Lake Ontario and Western, 1. During the four weeks ending June 7 there were 208 cases reported, with 19 deaths. Of the 57 deaths from it in the Maritime District during the month of April, 19 were in the Borough of Brooklyn. Diphtheria continues to be prevalent in Brooklyn, as it has been for a dozen years. The Health Department has recently established its own culture oven; a health inspector is kept in the office at all hours of the night as well as day. Cultures can now be sent direct to the Brooklyn office, instead of being left at drug stores, collected in the morning by inspectors, sent to the bacteriological laboratory in Manhattan and returned to Brooklyn.

CALIFORNIA.—San Francisco, 360,000. The injunction proceedings instituted by the Board of Health to prevent its removal, as noticed in our May number, have been sustained by Judge Sloss, who in a decision rendered May 29, said, in part:

"The title to the office in the case at bar depends upon a determination of the question whether, under the charter, the mayor has the power of removing appointed officers without giving them an opportunity to be heard in defense of charges first presented against them. The plaintiffs contend that he has not such power; the defendants that he has. But a determination of this question would be deciding the title to the office, which, as is conceded, cannot be done in an injunction suit, but only in the form of proceeding known as *quo warranto,* or its statutory equivalent. It follows that it would be idle for the court, in this proceeding, to express an opinion as to the construction of the charter provision regarding the removal of officers. Such an opinion would have no binding effect, and would not conclude either side in any proceedings which might hereafter be brought to determine who has the better right, or the only right, to the office in question. Whether, under the charter, the mayor has power to remove appointed officers without giving them notice of charges, and a hearing, and whether the plaintiffs or the defendants Stinson, Adler, Rottanzi and Van Meter are members of the Board of Health, are, therefore, questions which cannot be, and are not, decided on this hearing or in this action.

"But, although a court of equity has not jurisdiction to try the

title to public office, the principle is well established that, where there is a contest between two persons, both claiming to be entitled to the same office, a court of equity will, by injunction, protect the officer in possession as against the interference of an adverse claimant, until the latter has established his title by appropriate proceedings at law, viz., by the prosecution of a writ of *quo warranto*. . . .

"On the foregoing grounds, it would appear that the plaintiffs are entitled to the injunction restraining the defendants from interfering with them in the performance of the duties of their office, until such defendants shall have established their right by an appropriate proceeding at law. But, while the general rule, hereinbefore laid down, is not disputed by the defendants, they contend that, at the time of the commencement of the action, the actual possession of the office was in them and not in the plaintiffs. The facts are that, on the afternoon of the 20th of March, the mayor, accompanied by the other defendants, entered the rooms in the City Hall occupied by the Board of Health, none of the plaintiffs being at the time present; that the mayor announced to the secretary of the board the removal of the plaintiffs and the appointment of the defendants Stinson, Adler, Rottanzi and Van Meter; that the last-named defendants, together with the defendant Ward, then held a meeting in said rooms, at which they elected a president, passed a resolution continuing in office the then employés of the board, and thereupon adjourned, intending to meet again on the following day. Before any further action was taken, the injunction now under discussion was served. On these facts, who was in possession of the office? No demand had ever been made on the plaintiffs. They had not surrendered the office; in fact, at their very earliest opportunity they asserted their determination not to surrender, by bringing this suit. An office is a franchise; it consists of the exercise of intangible rights and duties appertaining to its occupant; and possession of the office does not depend on the mere physical possession of the rooms and furniture ordinarily used in the performance of the functions of the office. . . .

"The defendants may have a right to the possession of the office, but that is a different thing from the actual possession.

"Actual possession can be obtained from the occupant in one of two ways only—either by the surrender or abandonment of the office by such occupant or by his ouster in the course of legal proceedings.

"The right being disputed, the defendants cannot themselves decide the disputed right, and execute that decision by installing themselves in office forcibly or by entry in the absence of the officers in possession. Since the plaintiffs refuse to yield possession, the defendants must enforce their right to possession, if they have such right, by legal proceedings.

"The foregoing disposes of the demurrer and the motion to dissolve the injunction. The motion to strike out is directed to the allegations of the complaint regarding want of notice and an opportunity to be heard. While these allegations cannot, for the reasons hereinbefore stated, be of any importance in determining whether or not the removal was a valid exercise of power, they show the grounds upon which plaintiffs base their claim, and should remain in the complaint, in order that the same may disclose that a contest is made in good faith upon some basis.

"For the foregoing reasons, the demurrer will be overruled, with leave to answer within ten days; the motion to dissolve and the motion to strike out will be denied.

"M. C. SLOSS, Judge."

"The result was received with the greatest satisfaction by the profession. Our daily newspapers at once in derision and bitterness decried it, and in vicious language reiterated their false and threadbare indictments against the 'infamous bubonic' board. They were not satisfied, as was usual, to pour their venom on these men and the judge, but turned their wrath on the Treasury Department and the Marine Hospital Service."—"Occidental Medical Times" for June, 1902.

Report for April: Deaths, 608; 116 under five years; annual death rate, 20.25. Deaths from specific febrile diseases, 35; diphtheria, 16; cerebro-spinal meningitis, 6; measles, 6; typhoid fever, 3; bubonic plague, 1. "Occidental Medical Times" for June: Plague cases, 55, 56, 57, May 19, 25 and 26, all fatal and verified by post-mortem examinations.

Los Angeles, 120,000. Report for May: Deaths, 182; 29 under five years; annual death rate, 15.16. Deaths from tuberculosis, 28: "19 had lived here less than three months, 2 between three and six months, 1 between six and twelve months, 2 between one and five years, 7 between five and ten years, 1 over ten years, 1 life, unknown, 0."

COLORADO.—Denver, 150,000. Report for April, 1902: Deaths, 202; under five years of age, 44; death rate, 16.16; deaths from

phthisis, 50; "cases contracted elsewhere, 47"; diphtheria, 4; scarlet fever, 5; typhoid fever, 3; whooping cough, 3. Infectious diseases reported: Diphtheria, 25; scarlet fever, 85; measles, 75; typhoid fever, 2; smallpox, 30; whooping cough, 4; erysipelas, 3; chicken pox, 10.

CONNECTICUT.—Bulletin for May: Deaths, 1,100. This was 91 less than in April, and 44 more than in May of last year, and 12 less than the average number of deaths in May for the five years preceding.

The death rate was 14.5 for the large towns, for the small towns 14.6, and for the whole State 14.5.

The deaths reported from infectious diseases were 203, being 18.4 per cent. of the total mortality.

Smallpox was reported as existing in 12 towns during the month, and in 2 additional towns up to the 1st of June, a prevalence not known before in many years in Connecticut.

DISTRICT OF COLUMBIA.—278,880—86,467 colored. May 31, 1902: There was a decline in the number of deaths last week of over 22 per cent., as compared with the week before. Deaths, 83; death rate, 14.7, as against 15.9 in the previous week, representing a death rate of 19.0. From consumption the mortality increased from 13 to 16. The 76 cases of typhoid fever at the end of week before last were increased by 10 new cases last week, while 4 being discharged left 82 cases remaining under medical supervision. Of diphtheria there were 16 cases in quarantine as last reported. There were 21 cases of scarlet fever under treatment at the close of the last report.

ILLINOIS.—Chicago, 1,758,025. "Unrevised returns to the Bureau of Vital Statistics for May show a total of 2,128 deaths from all causes," says the commissioner of health in his weekly report on the state of the city's health. "This is a decrease of 144 over the previous month, April, but eighty-two in excess of the figures for May, 1901.

"In the first five months of the current year 11,223 deaths have been recorded, as against 10,293 in 1901, an excess of 9 per cent. in number and of 5.2 per cent. in proportion to population. The year 1901, however, has passed into history as the record year of low mortality, not only in Chicago but throughout the world generally.

"The *smallpox* situation maintains its satisfactory character, a

source of gratification to all concerned in its handling. Of the fourteen new cases discovered up to noon of Saturday, only one claimed he had ever been vaccinated, and a personal examination of this case did reveal a scar on the usual site of vaccination, but it lacked every characteristic of a true vaccinal scar, resembling rather that left by a burn. One-half the new cases were colored persons, a disproportion hitherto commented on. Since the first of the year there have been 215 cases of smallpox discovered and treated in the isolation hospital, with a total of three deaths.

"A statement of the mortality for May as compared with the preceding month and with the corresponding month of 1901—mid-year population of 1901, 1,758,025; of 1902, 1,820,000—is as follows:

	May, 1902.	April, 1902.	May, 1901.
Yearly death rate, per 1,000..	14.39	15.18	13.70
Total deaths.....	2,128	2,272	2,046
Males.....	1,231	1,300	1,145
Females.....	897	972	901
Under 1 year.....	441	401	329
One to 5 years.....	232	248	190
Over 60 years.....	394	468	426

IOWA.—Bulletin for May, 1902: Smallpox reported in 84 localities, with an aggregate of 204 cases; no deaths. And "this by no means represents the actual number as many report an outbreak without giving any figures."

KANSAS.—The secretary of the State Board of Health reports for May, 1902, smallpox in 21 localities, with an aggregate of 310 cases; no deaths.

LOUISIANA.—There has been introduced into the House of Representatives of the Legislature at Baton Rouge, now in session, a bill ostensibly providing for a commissioner of hygiene, whose duty it will be to attend the meetings of the farmers' institutes, parish fairs and public assemblies throughout the State to lecture on hygiene and public sanitation; a purely educational measure, it is asserted, to inculcate such knowledge of measures for the prevention of tuberculosis and of other preventable diseases as is already devolved upon the State Board of Health. The proposition is doubtless at the instance of some ambitious person to teach what all school teachers should be required to teach and practically

enforce—the sanitary regulations of the State Board of Health with regard to hygienic cleanliness and the medical inspection of schools.

New Orleans, 305,000—81,500 colored. Report for April, 1902: Deaths, 519—208 colored; 133 under five years. Death rates: White, 16.60; colored 30.62: 20.41. "This includes all deaths occurring in the city, without any exception whatever. Deaths from premature births, violence and among non-residents or recent arrivals, etc., are not excluded." Deaths from tuberculosis, 75—38 colored; pneumonia, 35—20 colored; typhoid fever, 9—2 colored; Bright's disease, 27—9 colored.

MARYLAND.—Under an enactment of the recent Legislature, Baltimore County has fifteen local health officers, one for each district. The newly appointed health officers are: First district, Dr. Charles L. Mattfeldt, Catonsville; second district, Dr. John E. Bolte, Tyler; third district, Dr. Henry A. Naylor, Pikesville; fourth district, Dr. Harry M. Slade, Reisterstown; fifth district, Dr. J. H. Drach, Butler; sixth district, Dr. Jos. S. Baldwin, Eklo; seventh district, Dr. Thomas Baldwin, Gemmill; eighth district, Dr. T. Ross Payne, Corbett; ninth district, Dr. Frank R. Rich, Towson; tenth district, Dr. Thomas H. Emory, Hess, Harford County; eleventh district, Dr. Jas. F. H. Gorsuch, Fork, Baltimore County; twelfth district, Dr. J. C. Schofield, Highlandtown; thirteenth district, Dr. Frank H. Ruhl, Lansdowne; fourteenth district, Dr. George S. Everhart, Hamilton Station; fifteenth district, Dr. John W. Harrison, Middle River. These officers are appointed under a new local law, and each of them in his own district has all the authority of a local health officer. With the county commissioners, these medical officers constitute the County Board of Health. Dr. J. F. H. Gorsuch is the president and Dr. T. Ross Payne the secretary. Their salaries range from $150 to $300 per annum. The medical members of the board do not have a vote on questions of expenditure.

MASSACHUSETTS.—Boston, 573,579. Health Department report for April, 1902: Deaths, 932; 276 under five years; death rate, 19.498; deaths from typhoid fever, 6; smallpox, 15; measles, 11; diphtheria and croup, 23; erysipelas, 12; purulent infection and septicemia, 12; tubercle of the lungs, 72; tubercle of the meninges, 13; cancer, 36; organic diseases of the heart, 80; pneumonia, 66; broncho-pneumonia, 51; nephritis, acute, 32; Bright's disease, 28; senile debility, 25.

MICHIGAN.—The secretary of the State Board of Health reports for May (four weeks ending May 31): Compared with the preceding month, whooping cough, diphtheria and meningitis were more prevalent; and influenza, pleuritis and erysipelas were less prevalent. Compared with the average for May in the ten years, 1892-1901, scarlet fever, smallpox and meningitis were more than usually prevalent; and consumption, erysipelas and remittent fever were less than usually prevalent.

Report of the most dangerous communicable diseases, from all sources, show *meningitis* reported at 2 places less; *whooping cough* at 2 places more; *diphtheria* at 5 places more; *typhoid fever* at 2 places less; *measles* at 26 places less; *scarlet fever* at 2 places less; *smallpox* at 82 places less, and *consumption* at 1 place less than in the preceding month.

Smallpox: Since the 1st of January, 1902, outbreaks of smallpox in 443 localities in Michigan have been caused to cease; and in 255, or 58 per cent. of those outbreaks, *the disease was restricted to the one household where the first case occurred.* Notwithstanding this record of effective work by the health services, State and local, the disease has continued to spread, because in the other outbreaks where the disease was not restricted to the first household, it was first called "Cuban itch," "cedar itch," syphilis, chicken-pox, impetigo contagiosa, or acne, and not reported to the health officers so that restrictive measures could be taken; in a very few instances the fault has been with the health officer himself. Because of such lack of proper reports or proper action, smallpox continued to spread. During the present epidemic the greatest number of places at which the disease was reported present, in any one week, occurred in the week ending Feb. 19, 1902, when it was reported present in 59 counties, at 157 places. It is now present in 38 counties, at 78 places in Michigan, 15 places less than in the preceding week.

Mortality Returns to the Department of State during May: 2,686 deaths, a decrease of 164 from the preceding month, and an increase of 22 over the corresponding month in 1901. The death rate was 12.8 per 1,000 estimated population. There were 465 deaths of infants under one year of age; 194 deaths of children aged one to four years, inclusive, and 769 deaths of persons aged sixty-five years and over. Deaths from pulmonary tuberculosis, 205; other forms of tuberculosis, 41; typhoid fever, 34; diphtheria and croup, 31; scarlet fever, 25; measles, 43; whooping cough, 29; smallpox, 1; pneumonia, 311; diarrhœa, children under two

years, 60; influenza, 27; cancer, 101; accidents and violence, 152; 6 from lightning.

Vital Statistics for 1899: A volume of 157 pages, edited by C. L. Wilbur, M. D., chief of the Division of Vital Statistics, Department of State, the second annual report under the new law for the registration of deaths, is a praiseworthy example of systematic arrangement with a view to practical completeness and accuracy, to which it probably approaches more nearly than any other State registration of vital statistics in the country.

The principal facts of the returns for the year are as follows:

Total number of deaths	33,675
Deaths per 1,000 estimated population	13.9
Total number of marriages	21,877
Persons married	43,754
Persons married per 1,000 estimated population	18.0
Total number of divorces	2,218
Persons divorced per 1,000 estimated population	1.8
Total number of births	41,818
Births in 1,000 estimated population	17.2

MINNESOTA.—Minneapolis, 202,718. Registry of deaths for May, 1902: Deaths, 250; 59 under five years; death rate, 11.58; deaths from typhoid fever, 8; tubercle of the lungs, 27; pneumonia, 28; broncho-pneumonia, 17; organic diseases of the heart, 20; Bright's disease, 14; cancer, 14.

St. Paul, 170,000. Report for April, 1902: Deaths, 170; 47 under five years; death rate, 12; deaths from diphtheria and croup, 10; tuberculosis of the lungs, 18; bronchitis, 10; pneumonia, 37: heart disease, 14; Bright's disease, 6; cancer, 6.

MISSOURI.—St. Louis, 598,000—38,000 colored. The annual death rate per 1,000 during the month was 19.88, this being based on a population of 598,0000, computed on census figures of 1900 (575,200) at the rate of 4 per cent. annual increase. During the month there were 39 less deaths than the previous month. Fifty-nine certificates were issued for deaths occurring outside the city limits; these are not included in the monthly statement. Percentage of deaths in eleemosynary and other institutions of a public character to total mortality, 27.9. Percentage of deaths in city institutions to total mortality, 16.04. White population, 560,000; mortality rate per 1,000, 18.22. Colored population, 38,000; mortality rate per 1,000, 44.20. Deaths from smallpox, 4; scarlatina, 17; diphtheria, 7; whooping cough, 20; typhoid fever, 14; con-

sumption, 105; bronchitis, 49; pneumonia, 145; other diseases of the respiratory organs, 31; Bright's disease and nephritis, 47; cancer, 27.

NEW JERSEY.—Hudson County (Jersey City and environs), 409,810. Report for March, 1902: Deaths, 648; 210 under five years; death rate, 19.0; deaths from smallpox, 22; diphtheria and croup, 16; typhoid fever, 5; consumption, 81; bronchitis, 16; pneumonia, 127.

Newark, 255,000. Report for the week ending June 7, 1902: Deaths, 103; death rate, 21.0; deaths from contagious and infectious diseases, 33; smallpox, 13; consumption, 9; pneumonia, 11; cancer, 3.

NORTH CAROLINA.—Bulletin for April, 1902: Twenty-seven towns, with an aggregate population of 89,800 and 60,850 colored, deaths, respectively, 103, 97; death rates, 13.8, 19.1 : 15.9; deaths from consumption, 18, 16; pneumonia, 14, 18: deaths under five years, 26, 27 : 53.

OHIO.—Cleveland, 400,000. Report for April, 1902: Deaths, 513; 194 under five years; death rate, 15.38; deaths from typhoid fever, 6; smallpox, 1; diphtheria and croup, 11; measles, 3; scarlet fever, 3; grippe, 4; tubercle of lungs, 36; bronchitis, 23; pneumonia, 74; broncho-pneumonia, 30; Bright's disease, 13; acute nephritis, 8; organic heart disease, 28; cancer, 17. Cases of infectious diseases reported to the State Board of Health during the eight weeks ending May 24, 1902 (Bulletin April, May): 71 places with an aggregate population of 1,273,153: croup and diphtheria, 241 cases, 41 deaths; scarlet fever, 438 cases, 31 deaths; typhoid fever, 226 cases, 39 deaths; whooping cough, 185 cases, 8 deaths; measles, 2,128 cases, 18 deaths; smallpox, 617 cases, 7 deaths.

PENNSYLVANIA.—Philadelphia, 1,293,697. Report for week ending June 7, 1902: Deaths, 398; 122 under five years; death rate, (?); deaths from consumption, 47; pneumonia, 39; diseases of the heart, 33; Bright's disease, 3; inflammation of kidneys, 25; typhoid fever, 7; smallpox, 2; cancer, 13.

Pittsburg, 346,000. Report for week ending June 7, 1902: Deaths, 126; 41 under five years; death rate, 18.9; deaths from typhoid fever, 16; smallpox, 3; consumption, 3; bronchitis, 2; pneumonia, 12; cancer, 4.

WASHINGTON.—Seattle, 115,000. Report for April, 1902: Deaths, 76; 14 under five years; death rate, 7.92; deaths from consumption, 5; pneumonia, 14; typhoid fever, scarlet fever, erysipelas, each, 2; cancer, 2.

WISCONSIN.—Milwaukee, 300,000. Report for April, 1902: Deaths, 321; 125 under five years; death rate, 13.05; deaths from diphtheria and croup, 17; consumption, 25; other tubercular diseases, 11; cancer, 18. Contagious diseases reported: Smallpox, 14; phthisis, 10; diphtheria, 41; scarlet fever, 18; typhoid fever, 12; measles, 76.

MONTREAL, Canada.—A recent report on vital statistics shows that of 6,990 vaccinations reported in 1900, only 48 of which were performed by the family physician, the balance being performed by the public vaccinators. Of this number, 2,094 were primary vaccinations, the balance being revaccinations. Contagious diseases numbered 2,802, divided as follows: Diphtheria, 523; scarlet fever, 1,107; typhoid, 647; smallpox, 24. The births numbered 9,892; marriages, 2,240. Still births and deaths among illegitimate and prematurely-born children, 742; premature births, legitimates, 300; premature births, illegitimates, 31; still births, legitimates, 322; still births, illegitimates, 44. Among the French-Canadians the deaths numbered 5,287, of which number 3,299 were under five years of age. Among the other Catholics, 444 were under five years of age. Among the Protestants the number was 370.

HAVANA, 271,363—72,492 colored. Major Gorgas reports for April, 1902, 499 deaths. The total number of deaths for the year 1898 was 21,252, giving a death rate of 91.53; for 1899 the total number of deaths was 8,153, a rate of 33.67; for 1900, 6,102 deaths, a rate of 24.40; for 1901, 5,720, a rate of 22.11. For the first four months of 1902, there have been 1,896 deaths, which would give for the year 5,688 deaths, a rate of 20.68. This indicates very forcibly the steadily improving sanitary conditions.

Another month has passed without a case of yellow fever; the last case occurred in September, 1901. The yellow fever table in the body of the report gives the number of deaths from this disease since the year 1889. For these twelve years the smallest number of deaths, 122, occurred in the yellow fever year of 1899-1900; the largest number, 1,385, occurred in 1896-1897, and the

average number of deaths for that period was 466. For the similar period of 1901-1902, we had only 5 deaths.

Our mosquito work commenced on February 4, 1901. As Havana has never been free from yellow fever before, I think it is a reasonable deduction from the figures quoted that it is now entirely stamped out; and believing that it is only propagated by the mosquito, I do not think it can occur again unless introduced from the outside.

The amount of work being done for the destruction of mosquitoes is undiminished, and this has had a great effect in decreasing malaria. For the year 1900, the year previous to mosquito work, there were 344 deaths from this disease; during the year 1901, the first year of mosquito work, there were 151 deaths; for the first four months of the present year, 26 deaths.

This is the last monthy report of vital statistics which will be made to the military governor, and it is also my last month as health officer of the city of Havana. I therefore wish to invite the attention of the military governor to a comparison between the conditions existing in April, 1898, just prior to the American occupation, and those which exist in April, 1902, the last month of American control.

The number of deaths in the city of Havana in April, 1898, was 1,399; the death rate was 71.88. In April, 1902, there were 499 deaths, a death rate of 21.77. In April, 1898, there were 49 deaths from malaria; in April, 1902, 8 deaths occurred from this disease. In April, 1902, there were no cases and no deaths of either yellow fever or smallpox in the city; these two diseases have for generations ranked among the principal causes of death here.

I submit this report as representing the sanitary condition of the city of Havana as it passes out of the hands of the military government.

W. C. GORGAS,
Major, Medical Corps, U. S. A., Chief Sanitary Officer.

CHOLERA IN THE PHILIPPINES.

The situation regarding the epidemic of cholera in the Philippines is set out in a report received by Surgeon-General Forwood from Lieut.-Col. Heizeman, June 13, at present in charge of the medical department of the army in the islands.

The appearance of the disease at Manila in March was attributed in some quarters to vegetables coming into the islands from infected Chinese ports, and in others to the drinking of Pasig River water, foul with the sewage of the city. Lieut.-Col.

Heizeman says the army is much better protected than the native population or than civilian Americans in the islands, because of the care which is exercised in supplying good food and water.

In Manila alone a total of 275 cases with 215 deaths had occurred up to April 15, the date of the report, with 453 cases and 308 deaths outside the city. In the provinces the disease attacked twenty-two different places. In the Camarines, at Nueva Cacares, the disease appeared, and this has been the only point where the army has suffered, two cavalrymen and an infantryman having the disease. The colored troops, the report says, naturally mix much more with the natives than the whites, drinking the water in the shacks which they visit, and eating native food, and they are thus made more liable to contract cholera.

Smallpox also has appeared, and has been more prevalent, it is stated, this year than in any, except the first, of American occupation. The wife of an American army officer in Manila has been attacked by it.

Vigorous measures of prevention have been instituted to attempt to check the spread of cholera.

METHOD OF KILLING ANIMALS AT PARIS POUND.

A lethal chamber for the destruction of lost dogs has been provided for the Paris pound. Thirty condemned dogs are placed in a cage, which is rolled onto a platform, which, by hydraulic force, sinks about six feet into the earth and is hermetically closed. Carbonic-acid gas is turned on and in the space of forty seconds every dog dies without a struggle. By the old system—the use of common gas—the dogs suffered for sometimes two and three minutes.

In the London pounds an admixture of carbonic-acid gas and chloroform is used, but it was decided here that as carbonic-acid gas is one of the most powerful anæsthetics known, the chloroform was superfluous. The cost of this lethal chamber was almost 10,000 francs ($1,930).

In the pounds of some of the cities in the United States, electricity is used for the destruction of the dogs. While this causes instant death, only one dog can, as I understand it, be killed at a time. EDWARD SUMNER GLAVIS, Consular Clerk.

Paris, January 16, 1902.

BOOK REVIEWS.

DIET.*

SIR HENRY THOMPSON has been for many years an accepted authority on diet, but not infrequently misrepresented by vegetarians, who have been wont to suport their exclusiveness by citing disjointed sections from his writings. "This little work," he tells us prefatorily, is the same as that first published in 1886, when he was but sixty-five years of age, to which he has now added, in his eighty-second year, about an equal amount of matter, verifying his earlier experience and observations, and an appendix on sugar. Evidently he is still free from what many younger persons are wont to describe as infirmities common to the aged, not because he has lived upon an exclusively vegetable diet, but because he has avoided *crrors* in diet—above all, overeating—has not been a wine-bibber, has led an active, outdoor life, exposed to such vicissitudes of weather and disturbed sleep as are common to busy physicians. Well clad, and, when indoors, he has been no less careful of a wholesome supply of fresh air sufficiently warm, than he has been of wholesome food in variety, properly cooked. This is inferred (not stated by the author) from the trend of his practical observations.

"Speaking in general terms," he explicitly says, "I have no sympathy with any dietary system which excludes the present generally recognized sources and varieties of food. It is possible, indeed, that we may yet add considerably to those we already possess, and with advantage; but there appears to be no reason for dispensing with any one of them. When we consider how varied are the races of man, and how dissimilar are the climatic conditions which affect him, and how in each climate the occupations, the circumstances and even the individual peculiarities of the inhabitants, largely differ, we shall be constrained to admit that any one of all the sources of food hitherto known, may be made available, and may in its turn become desirable, and even essential to life. . . . While sympathizing to a large extent

*Diet in Relation to Age and Activity, with Hints Concerning Habits Conducive to Longevity. By SIR HENRY THOMPSON, F.R.C.S., M.D, (Lond.), etc., author of "Food and Feeding." 12mo. P. 134. Price, $1.00. Frederick Warne & Co., New York.

myself with the practice of what is called 'vegetarianism' in diet, and knowing how valuable the exclusive, or almost exclusive use of the products of the vegetable kingdom may be for a considerable number of the adult population of our own and of other countries in the temperate zones, and for most of that which inhabits the torrid zone, I object strongly to a dogmatic assertion that such limitation of their food is desirable for any class or body of persons whatever."

He cogently describes Nature's plan of providing suitable food to all ages. "Is baby a vegetarian?"—a knockdown question, certainly to the exclusively vegetarian diet fallacy. And to show how meaningless it is he refers to the vegetarian restaurant of the Health Exhibition in 1888, "which supplied thousands of excellent and nutritious meals, which contained eggs and milk, butter and cheese, in great abundance." This was called vegetable diet, and asks: "Why should we limit by dogma or otherwise, man's liberty to select his food and drink?"

He proceeds to show the suitableness of food to different ages and conditions, lays special stress upon errors due to improper cooking, keeping and, above all, overfeeding, and the use of alcohol, to which may be attributed more than half of the chronic complaints which embitter the middle and latter part of life among the middle and upper classes of the population.

The new chapters discuss corpulence, and dietetics in detail, with special reference to the aged—bathing, bodily exercise, etc. Corpulence is considered a bar to longevity, and preventable by a properly regulated diet, particularly by the avoidance of an excess, or complete renunciation of fatty and starchy foods and sugar, and the avoidance of large quantities of liquids with meals.

Part of what he says, with regard to the diet and regimen of the aged, and particularly that portion which seems to be based upon his personal habit of early morning tea and writing for an hour while in bed, and four small meals daily besides, and his presumption "that most, if not all octogenarians have passed the age at which the early morning cold bath can be enjoyed all the year round," and squatting into a capacious hip-tub of warm water instead—as viewed by another octogenarian (one intimately known to this reviewer) is better calculated to promote debility than strength. Why the octogenarian, still in good health, should leave off a practice so well calculated to prevent extreme sensitiveness to the vicissitudes of weather, and adopt a practice of

such a decidedly contrary effect, is inconceivable and inconsistent with the purpose in view. And so, too, the author's "typical system of meals" (besides the morning tea); "breakfast, say about 8.30; lunch, about 1 or 1.15; dinner at 7 or 7.30, and a very light supper, in one's bedroom, about 11."

According to our observation three meals a day for adults, under ordinary occupations, without disturbing digestion by tidbits of any sort between, are much better calculated to maintain health than more. For the functions of digestion certainly do not acquire increase of power with increase of age. Moreover, most persons while in the enjoyment of general good health are more or less subject to short periods of indisposition, for which they cannot always account. Such indisposition commonly signifies the need of rest, particularly of the digestive organs, and the omission of a meal or two is ordinarily an effective remedy. Indeed, of *errors* in diet, the most common at all ages are *too frequent* eating—allowing the functions of digestion no time to rest. No matter how wholesome an article of food may be, it is but rarely, or never, wholesome, if partaken of in excess, too frequently, or at an improper time. Strength of digestive power in some persons may for a time seem to defy nibbling; but, like tippling, if persisted in, the power of resistance is certain to be overcome in time, and, not infrequently, when beyond the ability of recuperation.

PRACTICAL DIETETICS, with Special Reference to Diet in Disease,* admirably supplements the preceding. It is divided into nine parts: I. Food and food products; II. Stimulants, beverages and condiments; III. Cooking—Food preparation and preservation—the quantity of food required; IV. Foods required for special conditions; V. Food digestion—conditions which especially affect digestion; VI. The general relation of food to special diseases—diseases which are caused by dietetic errors; VII. Administration of food for the sick; VIII. Diet in disease—diet in infectious diseases; IX. Rations—dietaries: and these severally

*Practical Dietetics, with Special Reference to diet in Disease. By W. GILMAN THOMPSON, M.D., Professor of Medicine in the Cornell University Medical College, in New York City; Visiting Physician to the Presbyterian and Bellevue hospitals. Second edition; enlarged and thoroughly revised. 8vo., pp. xxiii.-828. Illustrated. Price, $5.00. New York: D. Appleton & Co.

into special sections, and an appendix of special receipts for invalid food.

The first section presents the elementary composition of foods, classifies them accordingly, and proceeds to consider their force-producing and nutritive values, and respective adaptations to the needs of the body in all circumstances—an essential scope of elucidation of the subject of its "special reference." Comparing the nutritive values of animal and vegetable foods (quoting Sir Henry Thompson):

"It is a vulgar error to regard meat in any form as necessary to life. . . . To many meat has become partially desirable only by the force of habit, and because their digestive organs have thus been trained to deal with it." This the author rightly considers but partially true, "for the training has become so strongly a matter of heredity through many centuries that those who prefer it are certainly in better health for a reasonable allowance of meat in their dietary, and many primitive savage tribes have always subsisted largely upon meat. But," he adds, "errors in diet are far more common on the side of excessive meat eating than the eating of too much vegetable food, especially among civilized communities." To this our experience, in the tropics and elsewhere, is contrary. Sickness justly attributable to errors in diet is more common to persons generally, and to peoples, both civilized and savage, who for the most part live upon vegetables and fruits, or partake of such food to excess, than it is to the proportionately exclusive and even gluttonous meat eaters. This might be verified by the citation of many diseases with which most physicians are familiar, particularly of children and youth, but it is unnecessary.

But, even more than this, in the community at large, close observers of the relation of certain diseases to diet, indeed of the most prevalent and ultimately the most fatal diseases in our midst, dyspepsia and pulmonary consumption, appertain in an extraordinary degree to those who exclude fatty foods, and for the most part live upon potatoes and other starchy foods, and the more if together with a common excess of tea. It is notable, however, in another place, that the author considers potatoes a poor food unless eaten "with meat gravy, fat, or butter and salt." Sweet potatoes are more nutritious, but not so digestible as the white potatoes, "for they cannot always be obtained in a mealy form"—indeed a *good* sweet potato never can be so obtained. Its superiority to the common potato is, as the author states, due

to its containing sugar. When freshly taken from the hill, sweet potatoes, when boiled and left to cool and evaporate the water soaked into them, are relatively dry, but never mealy, almost tasteless and innutritive. By boiling them the sugar is dissolved out and they become saturated with water. On the contrary, by baking or roasting, the sugar is retained; their nutritive properties, flavor and digestibility maintained. But like some fruits, sweet potatoes improve by keeping. They become sweeter and in the process of baking or roasting the starchy matter is transformed into glucose and exudes as syrup. Thus cooked sweet potatoes are soft and luscious, not "soggy," but syrupy, wholesome and nutritious, and acceptable to even delicate stomachs. There are several varieties. The best are those designated in Virginia, "Tolman potatoes." Farther on, in Part I., in the section on animal foods, page 120, a similar error occurs with regard to the cooking of ham and bacon, not for the sick only, but for the well. For any one who has been raised on such food, if cooked to a "crisp," it would be promptly rejected as so much bacon *coal*, of no nutritious value and unfit to eat. Properly *broiled* ham or bacon, after it has been boiled, is rendered more savory, digestible and nutritious. To properly cook bacon it should be cut in slices about a quarter of an inch thick, boiled for twenty minutes, and then broiled *brown*, but not *crisped*. Thus cooked it is generally acceptable to the stomach—even of dyspeptics—and is one of the best of foods for consumptives. One other exception, Part II., of liquors, page 251. Before the word Rum, New England or London Dock should have been written, for the stuff "distilled from a mash" (of sugar-house, dirty-floor scrapings and) "molasses," bears about the same relation to genuine rum, as New Jersey applejack does to French cognac, distilled from crushed grapes. Rum, as made in Jamaica and Santa Cruz, is an unique liquor, with diaphoretic properties, due to the presence of butyric and other ethers peculiar to sugar cane. It is distilled from the resultant mass, after fermentation, of a mixture of the skimmings of the sugar pans (in the process of making sugar) with fresh cane juice. The intensity of flavor is regarded as evidence of its excellence; and, like the product of grapes, is said to depend somewhat upon the nature of the soil in which the cane is cultivated. Additional flavor is sometimes given by adding pineapples and guavas to the distillation. It greatly improves with age.

But these and a few other errors of small moment can hardly

be considered inconsistent with a work of such magnitude, and certainly are not, when compared with other works of similar scope on the same subject, necessarily requiring credence for many things beyond personal knowledge.

Altogether, it is a work of singular completeness: replete with knowledge of foods, dietetics and beverages, their adaptations to the needs of the sick, and the best modes of preparing them—knowledge which no physician or surgeon, who would be abreast with recent advances in the physiology of dietetics can afford to do without.

THE FOOD FACTOR AS A CAUSE OF HEALTH AND DISEASE DURING CHILDHOOD,* comprises a lucid statement of the composition, nutritive value and adaptation of different foods to the necessities of childhood; points out the ill effects of the exclusion of important foods required for the formation of the tissues, and the excessive fear of indigestible food which often leads to actual debility in default of essential elements for healthy development. Special stress is laid upon the mineral elements which cannot be introduced into the system in an assimilable form except in organic combination with albuminous molecules in certain vegetables and cereals, which obtain them direct from the soil as provided by nature. Lack of such mineral constituents in food will not only cause all vigor and vitality to dwindle and die out, but indeterminate disease processes to supervene in consequence thereof. "Suitable adaptation of the different food constituents to cover the large demand for heat and energy, and for the storing of proteids, minerals and fat for future needs, is the paramount consideration in the diet of a child," and here shown to be practicable. The pamphlet should find many readers.

"PROGRESSIVE MEDICINE," for June, contains a series of valuable contributions on subjects of great importance to the general practitioner. Dr. Wm. B. Coley's article on the Surgery of the Abdomen, including Hernia, is thoroughly practical, illustrating the great field for surgical therapeutics in the treatment of many diseases of the digestive organs which have hitherto been consid-

*The Food Factor as a Cause of Health and Disease During Childhood, or the Adaptation of Food to the Necessities of the Growing Organism. By JOSEPH E. WINTER, M.D., Professor of the Diseases of Children. Cornell University Medical College, New York. Pamphlet, p. 20. William Wood & Co., New York.

ered as solely medical affections.—Dr. John G. Clark covers the operative field of Gynecology, and all devices for the treatment of diseases of women with great thoroughness.—Dr. Alfred Stengel in his article on the Diseases of the Blood and Ductless Glands, the Hemorrhagic and Metabolic Diseases, handles these difficult subjects in such a lucid and practical way as to make his contribusion of value not only to the pathologist, but also to the physician, who, from the exigencies of his work, may find difficulty in keeping pace with the most recent advances which have been especially remarkable in the study of the blood.—The article on Ophthalmology by Dr. Edward Jackson is marked by its author's characteristic facility of dealing with the subject in such a way as to be of value to the oculist and at the same time to meet the needs of the general practitioner.—As usual, illustrations are employed liberally wherever they can aid in the elucidation of the text. The abstracts are full and give the complete gist of the original papers from which they are taken. Their value is greatly enhanced by the comments of the various editors upon them.—Lea Brothers & Co., Publishers, Philadelphia and New York.

CONTEMPORARY LITERATURE.

PHYSICAL CONDITIONS OF THE GREAT SOUTHWEST.

The Southwest lies in the semi-arid, or sub-humid, belt. It is an elevated plateau, 3,000 feet above the sea, except where it bends to the valleys of eccentric rivers that wander across it oceanward. At times the very beds of these rivers—the Cimarron, the Pecos and the Beaver, with their minor branches—are glistening ribbons of sand, which the daintiest lady might cross without soiling her boot; again, a tiny rivulet winds its devious way along the sand path; then, when the snows have melted in the mountains, a rushing flood, six to ten feet high, sweeps down the valley, carrying everything before it.

But the soil is fertile and rich over much of the plain. The surface is covered at the northern portion with buffalo-grass, a close-curled, gray herbage that is stock food the year round. In January, as well as in June, on it alone flocks and herds will thrive. Toward the south is sage brush and mesquite. In the

desert-like spaces the cactus rears its forbidding head, and the deceitful mirage beckons gaily to the traveler. The foothills of the Rockies crop out here and there with towering summits. Above is a sky forever blue, while ceaseless winds have this for their playground. Rain and snow are infrequent, even to the southeast, where the influence of the Gulf is felt. These conditions, together with the mildness of its temperature, fit it especially for stock-raising and the attendant branches of agriculture which the West is learning to master. Because of this fitness, and because the "free range" days of the West are passing away forever, comes the demand for farms instead of ranches, and the recognition of the settler's rights.—From "A New Era in the Southwest," by Charles Moreau Harger, in the "American Monthly Review of Reviews" for June.

RECLAIMING OUR DESERTS.

The desert still maintains its fastnesses in the West. There are some spots better entitled to the name than others, but each year these fastnesses are shrinking before the advance of human enterprise, as the water might rise over the land, leaving the high and difficult places to the last. So these islands are scattered through several States and Territories, mostly in Arizona, New Mexico, California, Nevada, Utah and Oregon, in the great valley lying between the main ridge of the Rocky Mountains, on the east, and the Cascades, Sierra Nevada and the Coast Range on the west. Chief among them are the Mohave Desert, in southeastern California, a territory as large as Switzerland; the Colorado and Gila Deserts of southwestern Arizona and southern California; the marvelous painted Desert of northeastern Arizona, and the Great Salt Lake Desert of Utah. Opening northward from the Mohave Desert lies Death Valley, perhaps the most desolate and forbidding spot in America, though comparatively small in extent. Yet there are few places even in these desert strongholds that are wholly without life of one sort or another, and a large proportion of them could be reclaimed, if water were available. Even as it is, not one can bar human activity: railroads have been built directly across three of the worst of them; mines are being opened and oil wells driven; land is being reclaimed by irrigation; and even in the fastnesses of Death Valley there are many mining camps and an extensive borax industry. In all the West, look

as you will, you will find no desert more pitifully forlorn, more deserted, more irreclaimable and more worthless than the man-made deserts of northern Winconsin and Michigan, where fire has followed the heedless lumberman and spread a black and littered waste thousands of square miles in extent, where once grew a splendid green forest of pine. One is beautiful with the perfected grandeur into which nature molds even the most unpromising material; the other is hideous, grotesque, pitiful, a reminder of the reckless wastefulness of man.—From the June "Century."

THE ART OF CAMPING.

Some very practical advice for women campers is given by Martha Coman in an article with this title in the Recreation Number of "The Outlook," just published. Incidentally the delights of camping-out are engagingly set forth, both by description and by photographs. Here is what this writer has to say about an ideal bed for campers:

Rubber mattresses are good and sleeping-bags are excellent, but in all my experience as a camper I have found nothing so satisfactory or so comfortable as the bed built of fresh pine boughs. When these beds are carefully constructed, there isn't, to my mind, a hair mattress in the universe that can compare with this primitive but deliciously comfortable affair. If you are stopping only two or three nights in one spot and then going on in your search for game or for scenery, your guide will not take the trouble to make your bed in a very thorough manner. He will simply heap up some freshly-cut pine boughs and arrange them with the soft green needles for the top layer of the bed. The truly satisfactory bed of pine boughs requires some time and some skill to construct, and not every guide who inhabits the Quebec or Aroostook pine jungles knows how or is willing to bother with making one properly. In the first place, long logs are cut for the length of the bed, and shorter ones are put across the ends. Into this low box are piled, first, large freshly hewn boughs to build the bed up to the height of the box sides. On top of these boughs softer ones are laid, with the new green parts on top to form a covering for the springy moss. When plenty of the soft green needles are put over the other boughs, you have a bed that is at once deliciously soft and comfortable. The best part of it is that the aromatic balsam is a remedy in itself, and the elasticity of the bed lasts for days.

A PRESCRIPTION.

Does life seem vain and empty,
  Are all things going wrong,
And is there little music
  Left in the old, sweet song?
Has the poppy lost its brilliance,
  The rose its fragrance, too?
Take something for your liver
  And see how that'll do.
Have the glad old hopes departed,
  Are the old friends cold to-day?
Are the splendid plans all scattered
  Behind along the way?
Has the ship for which you've waited
  Been wrecked on far off shores?
Go out and walk like sixty
  And open up your pores.

—Chicago "Record-Herald."

THE NEW YORK AQUARIUM THE BEST IN THE WORLD.

It is not necessary to go to Cuba or Porto Rico or to Bermuda to see beautiful fishes, for the city of New York has established an aquarium on a grand scale, where all of those described and a multitude of others may be seen without cost on any day between nine and four o'clock. It is situated in Battery Park, at the southern end of the Island of Manhattan, within easy reach of all the ferries and the elevated railroads. The building, which was built for a fort, a little less than a hundred years ago, is circular in form, and as you enter the whole arrangement of the exhibit is plainly seen. On the floor are six large pools ranged around a large central pool, and in the walls are the tanks, whose fronts appear like so many beautiful living pictures. The thick plate-glass of these tanks is so clean and clear that it is invisible, and one feels, as he looks into them, that he is walking about in the submarine world. On the main floor there are thirty-six of these tanks, and in the gallery floor above are fifty-six more, making in all, with the pools, the largest aquarium yet constructed anywhere.

The pools on the floor receive the large water animals, such as sharks, seals, whales and sturgeons.

In another pool, along with some sturgeons, are some large and curious-looking fishes—the anglers. This fish is almost flat,

with broad fins and a wide, flat head that makes up nearly three-fourths of the bulk. It is reddish brown in color, and mottled so as to resemble the common rockweed of the ocean, and all along the edge of the body the skin grows out so as to make a ragged fringe. Its mouth is a huge affair, so large and cavernous, that a fish of medium size could easily take in a large pie at a gulp. On the end of its nose are two or three long spines, and on the tips of these are little tassels of flesh. The name "angler" was given to the fish because it half buries itself on the bottom among the weeds so that it is concealed, then plays the little tassels in the water before its mouth to lure the unsuspecting fishes near enough to engulf them in its capacious maw. Here is a veritable fisherman fish! It lives along our Atlantic coast in somewhat deep water, and may grow to reach a large size. There are other fishes that angle for their dinner, and one in the Mediterranean Sea, the "star-gazer," runs a long, worm-like tongue out of its mouth, which it wiggles and twists like a worm. The little fishes rush greedily to seize it, only to find that they have run into a trap from which there is no escape.

The wall-tanks on the right side as you enter are devoted to fresh-water specimens, and those on the left to salt-water specimens. Among the fresh-water fishes are many that are familiar to every boy who has wet a hook. Here are bullheads, "punkin-seeds," yellow perch, pickerel, suckers, several kinds of bass, and a large display of the royal family of the lakes, streams and brooks —the trout family.

On the salt-water side may be seen the beautiful tropical fishes from Bermuda, and many more kinds besides. One tank is filled with lobsters, blue crabs, spider-crabs, horseshoe-crabs, and others. Here are some sand sharks with sullen, ferocious looks, and along with them are the pilot-fish that swim around with the sharks, just as they do in the ocean, expecting to gather up the crumbs.

No other aquarium pretends to collect fishes beyond a few miles from its doors, while here distance is no barrier to the exhibition of a beautiful or interesting specimen. The daily attendance is the best measure of the success and popluarity of the Aquarium, and that has averaged five thousand for several months, without any unusual attractions.—Prof. C. L. Bristol in the June "St. Nicholas."

BUSINESS WOMAN'S CLUBS.

In New York there is a Business Woman's Club, which supports a good café or restaurant in one of the large down-town

office buildings, but without the other club features; doubtless, these will come later.

Chicago is the leader also in another movement for the convenience and well-being of her business women. This is a restaurant for women, run by women, where women's peculiar aptitude for waiting on themselves is utilized to do away with waitresses, and to bring the price of a substantial hot lunch within their means.

In the dining-room nothing on the bill costs more than five cents, and a girl may have hot roast beef, pork or beefsteak, with potatoes, a slice of bread, and a banana for eleven cents. The plan of service which makes these low prices possible is much the same in all the clubs. The same plan has been put into successful operation in Boston.—Helen M. Winslow, June "Delineator."

PING-PONG.

In the days of my Aunt Maria
They played with a shuttlecock,
And made it soar with a battledore
And a diffident feminine knock.
But now the Ping-pong banner
Is the one that we all unfurl,
For she plays in a fetching manner—
The paragon Ping-pong girl.

It's good for the indigestion,
And certainly it deserves
All credit due as something new
That's good for delicate nerves.
And after a cheerful dinner,
With a fairly festive throng,
Then either a saint or sinner
Is glad to play Ping-pong.

For Ping-pong has an advantage
That few other games can show,
It displays the charms of shapely arms,
In a bodice cut fairly low;
And a girl who is jimp and slender
Can bet on looking her best
When she enters as a contender
In the popular Ping-pong test.

Then play with your Aunt Maria,
And play with your Cousin Jane;
You may beat the "Spin," let the pretty girl win,
If you want her to play again!
For she'd be very apt to "hate yer,"
Since to lose is a thing that stings;
And there's plenty of human nature
In the heart of the girl that "pings."

It's certainly better in one way
Than baccarat, bridge, or loo,
For it's good for the health; and as for wealth,
Why, it's good for the pocket, too;
Since you never get caught in the net-work
Of the innocent Ping-pong nets,
And you'll do no harassing "fret-work"
Over plaguing Ping-pong debts.

Then play all day at Ping-pong
(Don't bother about the name,
Which suggests "jim-jams," and "diddle-diddle-dams,"
But it gets there just the same!)
So choose a becoming bodice
(That's a most important thing!)
And you'll be proclaimed as goddess
Of the paragon girls who "ping."

—New Orleans "Times-Democrat."

NEWS FROM PROCTOR'S.

Manager Proctor will keep his theatres in the field for summer patronage, presenting the Proctor Stock Co. as the main feature of the entertainments. The best comedies will be presented with carefully selected casts, staged with special scenic effects and costumed in an elaborate manner. The favorites will all be retained. Adelaide Keim, Beatrice Morgan, Florence Leslie, Adelina Roattino, Bessie Barriscale, Mrs. Ada Levick, Bessie Lea Lestina, Sol Aiken, Chas. M. Seay, Frederic Truesdell, Wallace Erskine and many other popular members of the big organization will be seen at the Fifth Avenue and One Hundred and Twenty-fifth Street theatres, in New York.

Summer vaudeville at summer prices will prevail at Proctor's, Newark, and at the Twenty-third Street Theatre. The Proctor

Stock Co. will have possession of the Proctor theatres in Albany and Montreal, presenting the latest Metropolitan successes. Vaudeville will be introduced between the acts at all of the Proctor theatres where the Stock Co. is presented. The entertainments will at all times conform to Manager Proctor's ideas of refinement in tone and correctness in presentation. Special arrangements have been made to attract and please the ladies and children, and the summer bids fair to be a lively period at the Proctor theatres. The comfort of patrons will be considered, and the theatres will be cooled by artificial means, fans will be provided for all seat-holders, and cooling drinks of ice-water will be plentifully distributed. Proctor's theatres are invariably cooler than the temperature of the street.

SIMILES.

"The Living Church" quotes this from a Connecticut woman's diary, dated 1790: "We had roast pork for dinner, and Dr. S., who carved, held up a rib on his fork and said, 'Here, ladies, is what Mother Eve was made of.' 'Yes,' said Sister Patty, 'and it's from very much the same kind of critter.' "

Parishioner—The people are complaining that you are too liberal. Unorthodox Pastor—Oh, that's a mistake, my dear, a great mistake. I am just as stingy as the rest of you.—"New York Weekly."

Biggs—There goes a man who is approached with fear and trembling by all who have dealings with him. Boggs—Ah! a criminal judge or something of that sort, I presume? Biggs—No, a dentist.—"Tit-Bits."

A SCIENTIFIC FACT: Doctor—Speaking of your trouble with your husband, do you know it is a scientific fact that meat causes bad temper? Mrs. De Jarr—Oh, yes, I have noticed it always does and especially when it's burnt.—"New York Weekly."

"How is your boy getting along at school?" "Splendidly—splendidly! I tell you, my friend, this boy of mine will make his way in the world, don't you fear. During the time he's been going to school they have had thirty-two examinations, and he's managed to dodge every one of them."—"Glasgow Evening Times."

SANITARY SCIENCE.

A SYNOPSIS OF SANITARY SCIENCES AS REPRESENTED IN THE SANITARIAN, ALPHABETICALLY.*

By The Editor.

Fenner, E., Dangerous Soil Moisture in New Orleans, xvii, 20.
Fermentation without Living Cells, xliii, 252.
Fernandez-Caro, Dr., Are There Diseases of Acclimation? viii, 433.
Ferry Boat Ventilation, iv, 137.
Fetid Feet, v, 445.
Fevers, xvii, 95, 370.
Fever, Curative Action of, Richter, xxxix, 257.
Fever, The Terrible African, Stanley, xxxvi, 283.
Fever, Cases of, through Drinking Bad Ginger Beer, xi, 74.
Fever, the Endemic in Louisville, J. N. McCormac, xv, 19.
Fever, Texas Cattle, Salmon, D. E., xi, 789.
Fiction, Morbid Anatomists in, Tourgee, xi, 363.
Field, A. G., Importance of Sanitary Legislation, iii, 255.
Field, David Dudley, Esq., Biographical Sketch, with Portrait, x, 449, 482.
Fields, R. McC., Sing a Song, xxxix, 236.
"Figures and War," Otto Berndt, xli, 361.
Filaria Sanguinis Hominis and Carcinoma of the Heart and Lungs, secondary to Carcinoma of the Liver, J. R. Taylor, xxxi, 49.
Filipinos, How to Make Friends of the, Hawthorne, xlvii, 566.
Filter Beds, The Poughkeepsie, xxxv, 302.
Filters, Dangerous, xli, 360.
Filters, R. Grimshaw, xxi, 238; xxix, 457; xxxv, 297.
Filtration of City Water Supplies, E. F. Smith, xxxvi, 425.
Filtration Near at Hand in Philadelphia, xlvii, 367.
Filtration, Sand, of Public Water Supplies, R. S. Lee, xlii, 289.
Filtration of Water, Water Pollution and Analysis, Ch. Smart, xxii, 404, 483.
Filth, Effects of on the Death-rate, xxxi, 91.
Filth, Genesis of, Especially in Stables, Prof. Mucksley, xi, 793.
Filth, Removal, The Shone System of, Adolph Smith, xxxiii, 39.

*Continued from previous number.

Filth and Its Perils in New York City, ix, 269.
Filth, Public Disgrace of, S. E. Chaillé, xx, 529.
Filth Fever in Albany, xxviii, 180.
Filth and Legislation, Regarding the Destruction of, G. L. Curtis, xiv, 136.
Filthy Bake Shops, xxxvi, 367.
Filthy Soil and Cellar Emanations, H. R. Storer, x, 65.
Filthy Streets, xi, 64.
Filtration, Sand, A. Hazen, xxxvii, 427.
Filtration, An Improved Method of, F. H. Mason, xxxviii, 289.
Finances, Dinah's Idea of, xxxvi, 501.
Financial Transaction, A, xxxviii, 50.
Fine Flour, vi, 162.
Fire on the Hearth—A Combination Warmer, v, 43.
Fire Island, to be Sold, xxxvii, 339.
Fire Mantel, The Incandescent, Pye, xxxviii, 421.
Fire-Tests, Experimental, xliv, 116.
Fire-Proof Buildings, E. F. Peck, v, 171; Construction of, xxv, 121; xxvii, 135.
Fire-Proof Fabrics, xl, 285.
Fire-Proofing War Ships, Hexamer, xlii, 156.
Fires, How to Prevent, xlii, 444.
Fires, Invention to Prevent, C. J. Mountford, xi, 601.
Fires, Winter, Fighting, xliv, 284.
Firks, V., the Mortality of Children, xvii, 64.
First Mayor of Brooklyn, iii, 289.
First Steamer to Cross the Ocean, xliii, 46.
Fish, Alimentary Value of, xlii, 285.
Fish, How to Choose a, xlvi, 353.
Fish, Poisonous, Brosch, xxxviii, 61.
Fisher, C. E., Home Life in Havana, xliv, 411.
Fisher, C. H., Consumption in Rhode Island, xvi, 254.
Fisher, G. L., Development of Fever by Obstructed Drains, ii, 132.
Fisher, W. E., Remarks on Ocean Climate, xxv, 442; State Hospital for Consumptives, xlvii, 428.
Fisheries, The Louisiana, xlvi, 144.
Fishy Odor of Water, v, 334.
Fisk, G., Foods in Disease, xxxvii, 135.
Fisk, Harvey, Introduction of Rain Baths, xxxvi, 481.
Fisk, S. A., Meteorological Data of Colorado, xxxiii, 302; Digestion *vs.* Drugs, xxxix, 23.

Fistula, Anal, Treatment of without Operation, xxii, 380; Adler, xxxv, 342.
Fite, C. C., xiii, 80.
Fitts, H. B., Sitka, Climate and Diseases of, xxvi, 244.
Flannelette, The Danger of, xlvii, 66.
Flannels, to Wash, xxii, 547.
Fitz, G. W., Hygienic Instruction, xli, 213.
Flat Foot, Painful, Bloch, xxxix, 152.
Flats, xi, 561.
Flavoring Extracts, xviii, 335.
Fleas and the Transmission of Plague, xliii, 54.
Fleming, Walter M., Treatment of Laryngeal Winter Cough, xli, 546.
Flemming, George, Are Smallpox and Cowpox One and the Same Disease? xviii, 49.
Fleming, W. I., Physiology of the Turkish Bath, viii, 207.
Fletcher, R., Public Rights *vs.* Personal Liberty in Health Affairs, xxxix, 166.
Fletcher, Mrs., The Woman's Hotel, vi, 276.
Flick, L. F., Duty of the Government in the Prevention of Tuberculosis, xxvii, 316.
Flies, Dangerous, xxxiii, 92.
Flies, to Drive Away, xliii, 251.
Flies, How to Drive Out of a Room, xi, 393.
Flies, Oil of Bay *vs.*, xxi, 384; the Nuisance of, xxxii, 561.
Flint, Austin, Dyspepsia, xxxii, 36.
Floating, iii, 296.
Floor, A Novel Method of Laying a, xxiv, 350.
Florida as a Health Resort, F. D. Lent, iv, 529.
Florida, Inducements to Settlers, J. W. Tucker, vi, 126.
Florida for Invalids, ii, 495.
Florida, Mineral Springs and Climate of, Bell, xxxv, 528.
Florida, Quarantine Control in, xxxv, 159.
Flowers and Vines, viii, 519.
Flour *vs.* Flesh, viii, 126.
Flour Dust, xi, 597.
Fluegge, C., Disinfection of Dwellings with Formaldehyde, xlii, 411.
Fluid with Meals, xxxiii, 335.
Flush Tanks, Etc., Wm. Paul Gerhard, x, 577.
Flushing Purposes, Domestic, Quantity of Water Required for, C. Porter, xlii, 34.

Fly, A, in the Beer, xxxiv, 526.
Fly Speculations, xli, 65.
Fœtal Murder, H. R. Storer, xl, 222.
Fogs, What Are? Alexander McAdie, xxxviii, 189.
Fog Epidemic, The, i, 499.
Folding Bed, The, xxxiv, 374.
Fomites and Yellow Fever, A. N. Bell, xlvii, 302.

FOODS: THEIR NUTRITIVE VALUE, COSTS AND CHEMICAL COMPOSITION.—W. O. Atwater, Ph.D.

What has been said of the ingredients of food may be briefly recapitulated as follows:

"Ordinary food materials, such as meat, fish, eggs, potatoes, wheat, etc., consist of—

"*Refuse.*—As the bones of meat and fish, shells of shellfish, skin of potatoes, bran of wheat, etc.

"*Edible portion.*—As the flesh of meat and fish, the white and yolk of eggs, wheat flour, etc. The edible portion consists of *water* and *nutritive ingredients* or *nutrients.*

"The principal kinds of nutritive ingredients are *protein, fats, carbohhydrates,* and *mineral matters.*

"We live not upon what we eat, but upon what we digest. In other words, the value of food for nutriment depends not only on how much of nutrients it contains, but also upon how much of these the body digests and uses for its support.

"By digestibility of food several different things are, or may be, meant. Some of these, as the ease with which a given food material is digested, the time required for the process, the influence of different substances and conditions on digestion, and the effects upon health and comfort are so dependent upon the peculiarities of different individuals, and are so difficult of measurement, as to make the laying down of hard-and-fast rules impossible. For our present purpose, the most important factor is the amount digested. This, fortunately, is more easy to determine. Understanding by the digestibility of a food the proportions of each of the nutrients which can be actually digested by healthy persons, the question can be answered more or less accurately by experiment."

" . . . A quart of milk, three-quarters of a pound of moderately fat beef—sirloin steak, for instance—and five ounces of wheat flour, all contain about the same amount of nutritive material. . . . The milk comes nearest to being a perfect food. It contains all of the different kinds of nutritive materials that the

body needs. Bread made from the wheat flour will support life. It contains all of the necessary ingredients for nourishment, but not in the proportions best adapted for ordinary use. A man might live on beef alone, but it would be a very one-sided and imperfect diet. But meat and bread together make the essentials of a healthful diet. Such are the facts of experience. . . . . :

"The different nutrients of food serve the body in different ways. The principal tissue formers are the protein compounds, especially the albuminoids. These make the flesh of the body. They build up and repair the nitrogenous materials, as the muscles and tendons, and supply the albuminoids of the blood, milk, and other fluids. The chief fuel ingredients of the food are the carbohydrates and fats. These are either consumed in the body when the food is eaten or they are stored as fat to be used as occasion demands. . . .

"Taking ordinary food materials as they come, the following general estimate has been made for the average amount of heat and energy in one pound of each of the classes of nutrients:

	Calories.
In 1 pound of protein.....	1,860
In 1 pound of fats.....	4,220
In 1 pound of carbohydrates.....	1,860

"In other words, when we compare the nutrients in respect to their fuel values, their capacities for yielding heat and mechanical power, a pound of protein of lean meat or albumen of egg is just about equivalent to a pound of sugar or starch, and a little over two pounds of either would be required to equal a pound of the fat of meat or butter or the body fat.

"The fats have, weight for weight, about two and one-fourth times the potential energy of either the protein or the carbohydrates. Water has no potential energy. Hence the food materials which have the most fat and the least water have the highest fuel value. Butter and fat pork consist almost exclusively of fat. They lead the other food materials in fuel value. . . .

"Among the vegetable foods, the chief differences to notice are the proportions of water and of protein. The quantities of water range from 90 per cent. or more in beets and turnips to as low as 10 per cent. in some kinds of flour. In general, dry seeds, like wheat, corn, and beans, and the different kinds of flour and meal prepared from them, contain not far from one-eighth water and seven-eighths nutrients." . . . —xxxvi, 193, 313. Diagrams and Tables.

Food, Adulteration of, C. C. Youmans, viii, 346; M. Girard, xi, 168; Clifford Richardson, xviii, 332; D. H. Beckwith, xix, 49; V. C. Vaughan, xx, 396, xxv: and Meat Poisoning, W. K. Newton, 37; "Coffee Beans," 126; Bill to Prevent, 199; Adulteration and the Pure Food Law, Lee K. Frenkel, xxxviii, 513; F. X. Valade, xli, 508; xlii, 481; xliv, 187; xlvi, 265; Food Adulteration in Europe, T. T. Du Bois, xlv, 220.
Food which Fails to Feed, Windmuller, xliii. 553.
Food, The, of the Poor, xxxvii, 99.
Food Preservative, Boric Acid as a, N. T. Wenzel, xxxviii, 407.
Food Preservatives and Dyes, xliv, 198.
Food, Analysis of, ii, 429, 473, 522, 569; iii, 46, 92, 142, 189, 232, 286, 327; iv, 44, 90, 137; v, 71.
Foods, Artificial, E. W. Earle, xxi, 122; J. Percy Remington, xliii, 341.
Food Articles and Cooking, Exhibition of, in Bulgaria, xlvi, 559.
Food, The Functions and Uses of, C. F. Langworthy, xlvii, 385.
Food and Health, Atwater, xxxvi, 324.
Food, Harmful Effects of, V. C. Vaughan, xliii, 563.
Food, Infection with Toxicogenic Germs, Victor C. Vaughan and Geo. D. Perkins, xxxvi, 20.
Foods, Chemical, in Germany, xlv, 344.
Foods and Drinks for the Sick, Juliet Corson, xi, 260.
Foods, Difference in Time Required to Digest, E. Jessen, xiv, 177; Atwater, xxxvi, 313.
Foods and Drugs Bill, Adulteration, x, 237.
Food of Man, xxiii, 455.
Food and Physic, vii, 514.
Food, The, We Eat, E. Brooks, xiii, 537.
Food, The Proper, for Children, D. M. Canman, xviii, 421.
Foods for Babies, Defective Nutrition, Jerome Walker, iii, 205.
Foods, Canned, J. P. Hawkins, xiii, 255; Before the Law, xxxvii, 254.
Foods, Carbohydrate, xliv, 418.
Food, Cotton Seed Oil as, xiii, 455.
Foods, Infant, Skalweit, xiii, 207; xxviii, 471.
Foods, Injurious, Prohibition of in Massachusetts, xlvii, 271.
Foods—Health, Invalid, Infant, and Milk Sugar, Prof. A. R. Leeds, xi, 321.
Foods, Nitrogenized, Maurel, xliv, 353.
Food Preservatives, Rex Magnus and Venetian Red, xii, 87.
Food, Its Relation to Health, Juliet Corson, xxiii, 511.

Foods, Relative Value of Different, R. J. Redding, xi, 647.
Food, Milk; Nestles', xxiii, 518.
Food, The Manufacturers' Association of, xxix, 288.
Food, Malt Extracts as, J. M. Fothergill, xiv, 244.
Food and Its Relation to Disease, J. H. Herrick, xvi, 428.
Food Poisoning, and Metallic Irritants, C. Harrington, xliv, 193.
Food, Tainted, Ptomaines and Poisoning by, J. M. Barnhill, xviii, 258.
Foods, Proprietary, xxv, 285.
Food of the Far Northwest, C. W. Whitney, xxxv, 378.
Food Cans, Poisonous, xlii, 363.
Food-Fish, Cheaper, xxv, 353.
Food Laws, Pure, Constitutionality of, xlv, 457.
Food, Meager, and Health, xlv, 437.
Food, Powdering, to Keep it, xlvii, 382.
Food, Pure, and Drug Legislation, Geo. M. Kober, xlvii, 108.
Food Reform, Pure, Urgent Need of, xlv, 286.
Food and Drink Supply of Paris, xlvii, 495.
Food and Health Exposition in New York, xxviii, 183.
Foot, The Normal Form, and the Origin of Deformities of, M. Manouvrier, xxvii, 477.
Foot, The Sole of, Variation in the Form of the, MM. Féré and Demantké, xxvii, 65.
Football, xxxii, 93; Deaths by, xxxviii, 91.
Football, History and Ethical Functions of, N. O. Messenger and Chas. F. Thwing, xlvii, 564.
Footed the Bills, xxxix, 34.
"For Crawling in the Abdomen," A Good Physic, xxv, 182.
Forbes, Charles, Communion Cup, "Danger Real," xxxiii, 337.
Forceps and Idiocy, xxii, 380.
Forchheimer, F., *et al.*, A Symposium on Infant Feeding, xxi, 3.
Ford, W. H., Sanitation of Philadelphia, xxx, 515.
Forde, W. E., Mental Hygiene, xiv, 481.
Foreign Health Reports, iii, 232, 279, 327, 379; iv, 89, 136, 189, 238, 332, 431, 569; v, monthly.
Foreign Hospitals, R. R. McIlvaine, v, 303.
Foreign Missions in the Light of Fact, Judson Smith, xxxvi, 187.
Foreign View of the United States, xli, 95.
Formento, F., School Hygiene, xiv, 227; International Sanitation, xxx, 3; Prevention of Yellow Fever, xxxiv, 134.
Forests and Climate, A. Woeikof, xvii, 264.
Forests, Preservation of, Francis Parkman, xiv, 497.

Forests, The Hygienic Value of, Prof. Ebermeyer, xxviii, 525.
Forests, The Salubrity of, xvii, 266.
Forests, Utility of, xxxvii, 56.
Fortier, L. L., Physiology in School, xxxiv, 202.
Forwood, W. S., Canning Houses and Their Relation to the Public Health, xii, 9.
Foster, Frank P., Vaccination, ii, 357.
Foster, G. W., Thermal Springs of Salt Lake City, xxvi, 48.
Foster, M., Weariness, xxxii, 41.
Foster, W. C., The Economical Disposal of Refuse, xxiv, 395.
Fothergill, J. M., Malt Extracts as Food, xiv, 244.
Foundries—Dust Dangers, xliv, 172.
Four Hundred and Fifty-seven too Many! Emigrant-Ship Stifling, x, 378.
Fowler, G. B., *et al.*, N. Y. Infant Asylum Epidemic, xi, 694.
Fowler, H. P., Faulty Menu of Boarding Schools, v, 481; Measles, Whooping Cough and Diphtheria, xiii, 485.
Fox, C. B., Why Should the Existing Worthless System of Registering Sickness be Longer Perpetuated? vi, 57.
Fox, Cornelius, Pollution of Rivers, iv, 13; Typhoid Fever, 200.
Fox, John M., Typhoid Fever, ii, 156, 210.
Fox, Geo. Henry, Papular Erythema, Following Vaccination, xxxvi, 423.
Fox, L. W., Eyesight, Its Care During Infancy and Youth, xxix, 401; in Middle Life and Old Age, xxx, 28.
Fracture of the Clavicle Treated by Suture, M. Poirier, xxvii, 362.
Fracture of the Cranium, Antiseptic Treatment of, xxx, 357.
Fractures of the Skull, Unusual Symptoms of, M. Poirier, xlvii, 337.
France, Education and Crime in, xi, 56; No Howard in, 445; Railroad Accidents in, 215; Vital Statistics of, xxx, 280; For the Increase of Population in, xxxvii, 275; *Increase* in Population, xlvi, 51.
France and the Maid of Orleans, xxxv, 187.
France, the Population of and the French Language, xlvi, 49.
Frankenthal, A. L., Insanity in Switzerland, xlii, 433.
Frankland, Prof. E., Organic Impurities in Drinking Water, iv, 241.
Frankland, Percy, Sunshine and Microbes, xxxiii, 377.
Franklin, G. S., Sanitary Care of Privies, xiv, 441.
Gallatin, James, Tenement-house Reform in New York, ix, 122.

THE SANITARIAN.

AUGUST, 1902.

NUMBER 393.

REVIEW OF THE SANITARY CONDITION OF THE NAVY.

By JOHN C. WISE, M. D.,
Medical Director, U. S. Navy.

For a proper conception of this subject, we must have some standard as to what we can expect in an environment so unfitted for the maintenance of health as is presented on shipboard, and what reasonable concession can be expected from the purely militant arm for which such a fighting machine as a battleship is designed and constructed, bearing in mind, on the one hand, that health means efficiency, and, on the other, that too great a sacrifice to this immediate purpose may defeat the very *raison d'etre* of a ship or fleet. The man whose views are the extreme exponent of one side of this question, Edward Parkes, the celebrated professor of military hygiene at Netley, England, has said: "The state employs a large number of men, whom it places under its own social and sanitary conditions—it removes from them much of the self-control with regard to hygienic rules, which other men possess, and is therefore bound by every principle of honest and fair contract to see that these men are in nowise injured by its system." We can well understand this position taken by one who had so deeply at heart the physical welfare of the soldier, but we ask if his views are not too humanitarian for practical military affairs? As a matter of fact, if the most humane and paternal of governments were bound by any such contracts, the recruiting of an army would be an impossibility. Moreover, such is not the expectation of those who enter upon the life of a soldier or a sailor; on the other hand, these men, as a rule, enlist fully cognizant of the fact that they surrender their self-control from various motives, among which may be mentioned the pecuniary compensa-

tion, the love of adventure, and, we will agree, a certain amount of patriotism. That the recruit is aware of, and accepts the fact, that his life is to be one of danger and hardship, is self-evident and true in the very nature of known and inevitable conditions. In the same spirit as Parkes's contention we find the medical reports of the navy frequently contain complaints of unjustifiable sanitary conditions and hardships, some of which are reasonable, and as many more, due to a natural zeal which every medical man must feel in the welfare of those entrusted to his professional care, not only to heal, but to keep well.

It is, we will state in the outset of this brief representation and discussion, in the belief that the sanitary progress in the navy of the United States has been *pari-passu* with the advance for which this service is called into existence, with a just appreciation of efficiency and the due demands of a considerable humanity, that the writer expresses his views, and the most hopeful reflection in this connection is the enlightened standpoint which obtains, among those high in authority, that health is essential to efficiency, that the man who fights the gun is a machine more important than the gun itself, and that no truer axiom was ever enunciated than that of the greatest master of the art, when he said, "Health is indispensable in war, and nothing can replace it." (Napoleon quoted by De Segur.)

The position taken, being conceded, we maintain that the sanitary standard of our navy is as perfect as can be attained, in the present state of our knowledge of this important subject.

It is not the intention to review the steps which have led to the present condition, this subject relating to a period just prior to and succeeding the civil war, has been fully related by Gihon. Here it is desired to show what the great changes are, and what advance has been made in the last twenty years, a period treated of by Surgeon-General Tryon in his paper on "The Relation of Architecture to Naval Sanitation."

Of the 233 ships composing the Navy of the United States, January 1, 1902, 136 are built of steel, 58 of iron, 27 of wood, 10 composite and 2 steel wood-sheathed. The steel, the iron and composite ships can, from a sanitary point of view, be considered in one class, amounting to 194. The wooden class are mostly old, used principally for training and receiving ships or remaining in service and purchased in the Spanish War. This class is diminishing rapidly and will soon be entirely extinct, so the Navy can practically be considered as built of metal.

The great advantage gained in the healthfulness of a ship by the use of inorganic material will be readily understood.

There can be no doubt that vegetable decomposition played a conspicuous part as a factor in the ship built of wood; there is scarcely a report of the date treated of without allusion to this cause of disease, applying especially to those constructed about the time of the Civil War, when timber not perfectly or sufficiently seasoned was often used. Sternberg early called attention to decaying timber as a cause of yellow fever, and it is a significant fact that, since the practical abolition of wood in construction, this disease has disappeared in epidemic form from the Navy.

Another great advantage of the steel ship is the practical abolition of the bilge, which in the old ship, from its situation, inaccessibility and darkness, was never sanitary. The double bottom of the modern ship is accessible, can be well lighted, thoroughly drained and dried. The disadvantage of metal in ship construction is its property of condensing moisture and its retention of heat; the former condition is minimized at this time in the service by the use of cork, paint and heating by steam. On the new battleship "Kearsarge" the steam pipes are under the bunks and between these and the skin of the ship, insuring perfect dryness.

With the thorough system of ventilation, now installed, even tropical heat in the fire-rooms is rendered bearable.

Naval construction, it should be borne in mind, has, in late years, become much more complicated with the introduction of steel; the anatomy of the old ship is hardly recognized in the new. Whereas, in the old, we had long fore and aft decks, with comparatively few obstructions athwart; the new structure has increased the number of planes; while the compartments and other structures render anything like natural ventilation impossible. The nomenclature of years ago is passing, and the division of forecastle, poop, main-deck, gun-deck, berth-deck and orlop are being replaced by superstructure, splinter-deck, bridge-deck, turret, etc. It can be said that a ship is the most complex of human habitations, and modern construction has rendered it more so. A writer of the old régime on this subject has described the ship as "a horizontal cylinder, which is furnished with two parallel and horizontal compartments, to which are added other partitions, intersecting these throughout the ship in a most varied and irregular manner and placed perpendicularly" (Surgeon R F. Gibbs, U. S. N.).

Construction to-day is infinitely more difficult of description,

and it is true that the new ship could not have been made even a comparatively healthy dwelling had it not been for heating by steam and the effective system of artificial ventilation.

The combination of these three agencies has been the greatest factor in modern naval hygiene.

We have mentioned the beneficial results of steam indirectly, its introduction leading to the abolition of sail-power, thereby discarding a powerful means of natural ventilation. It has been said that the all-around life of a sailor on the old ship was one which involved the use of more muscles of the body than any other occupation. He was an adept with the marlin-spike, or fine needle, for sewing and embroidery; the fidicinales were no more neglected than the deltoid or femoral muscles. The going aloft and the various exercises in making and furling sail furnished a variety of movement and an activity so great as to develop the finest physical condition, and we must admit infinitely superior to that of the make-up of most ship's complements of to-day. Yet the advantages accruing from the introduction of steam are so great that we lose sight of whatever losses it may have entailed.

On the battleships the berthing space (*cube d'emplacement*) is about 175 feet per man on the berth-deck. From a comparison of the smaller ships the above ratio is much lower, being on the "Newport" and "Isla de Cuba" 80 cubic feet. Compared with the past régime, the "Hartford," "Shenandoah" and "Omaha" allowed 98 feet per man, which ratio obtained closely in the smaller ships. While the cubic space cannot be reduced to such an extent that to keep it pure air must be driven at such velocity as to cause draught, a comparison would indicate that in the service to-day the space allotted per man has increased fifty per cent. in the larger ships and has remained about the same in the lower rates.

A great improvement was made in the ventilation of our ships when the change was made from the old plunger to the Wilson air-port, yet with the small initial air-space the changes of air, so as to make it fit for respiratory purposes, were never accomplished at sea or in any weather requiring that the hatches be closed.

True, some of the ships were better off than others, through the greater size and fortunate situation of the hatches, but a careful perusal of the reports of the period treated of clearly shows that at night, even with one watch below and hatches and ports closed, the renewal of air was so insufficient as to render it unfit for healthy respiration. In speaking of such conditions on the "Tuscarora," 1873-'74, Surgeon Neilson wrote: "The pollution of the

atmosphere, one hundred and twenty-two (122) cubic feet per man, is very rapid, for, in addition to the natural deterioration by individuals and lights, by cutaneous and pulmonary exhalations, we have *fecal odors* arising from water closets and emanations from green stores in the bathroom." In most of the ships of this date the "galley" was located on the forward berth-deck, and, although the situation was in nowise sanitary, yet, by heating the foul air below, it hastened its elimination. Fires being put out at night, however, even this artificial aid was withdrawn.

The condition here shown existed in greater or less degree on all ships of the Navy at this period, and it can be said in all truth, when all vicissitudes of weather and other factors are considered, that the spar-deck was about the only part of a ship that was properly ventilated, and it was fortunate that in the life at sea, as it then existed, so many demands called the crew so great a part of the time in the open air, thus counterbalancing to a considerable extent the evil effects of the insalubrity below.

While there are reports from many of the ships of the new navy showing that the ventilation is not perfect, they, in the main, are the result of defects in installation.

In other respects the present status of the question, as shown in the Report of the Surgeon-General for 1901, is altogether most gratifying and reveals an advance in which the service can be justly congratulated.

Supply and exhaust ventilation by blowers run by electric force exists in all new ships, and in a majority of cases gives satisfaction, or as a minimum consideration produces a state so vastly ahead of what we have had heretofore as to satisfy the most pessimistic. As a standard we give the system on the battleship "Kearsarge" (Report of Fleet Surgeon J. C. Boyd, U. S. N.). The air supply is accomplished by the means of ten 50-inch ventilating blowers, each being driven by a twelve horse-power electric motor. For the extraction of foul air from certain portions of the ship there are three blowers, each driven by an electric motor of 3½ horse-power, and capable of making from 900 to 1,030 revolutions per minute. In addition there are seven portable blowers of ¼ horse-power for ventilating passages, holds, drain-bottoms, etc. The installation is so arranged that blowers and motors are on the first deck, thus giving the air for such portions of the ship a long main run fore and aft, overcoming curves and mechanical obstacles.

The power of this system is such that the air throughout the

ship can be changed every few minutes. "The cubic capacity of the ward-room is 5.376 feet, and it has been found that the air is changed 15.6 times per hour, or every 3.8 minutes." The sick bay is supplied by four branch ducts, keeping the air pure and odorless.

The volume of air delivered through the blowers, with motor making 500 revolutions per minute, equals 116.544 cubic feet per hour. This amount can be increased about 32.000 cubic feet by removing cowls and wire covering the louvres.

Surgeon Green, on the "Alabama," reports the ventilating system on that ship as defective, but this is simply an error to be corrected by the electrical engineers. Reports from most of the ships state the electric ventilation as ample and efficient.

Steam heat is generally adopted throughout the service and is such that the great volume of air introduced can be warmed and the ship kept dry. It is with the ship as with other habitations—dry air means air in motion, which is another expression for its purity; while air ladened with moisture not only remains stagnant, but holds in suspension much more readily any prevailing impurity.

The change in the amount of water used on deck, and the frequency of washing down, marks one of the potent changes in the naval service, as also the provisions for shellacking the berth-deck and the use of dry methods of cleansing.

This practice, however, has not been carried to the extent which its importance demands, and even in some of the large cruisers the berth-deck is not shellacked and is wet down as often as twice a week. In tropical stations the practice is especially reprehensible, for as the ships must have their awnings housed a good part of the time on account of the continuous rainfall, the natural up-draft is prevented and much moisture confined below.

The electric light has made immensely for sanitary advance, for while there may not be all the artificial light possible, there is now no part of a ship which can become a veritable "black hole," hid in darkness. The search light is turned on every angle, passage and corner, where of yore "a dull yellow tallow-candle gasping for oxygen" served to make darkness visible; there is no longer to be found men who have "passed years in the dim, dismal, roach-ridden recesses of a frigate's orlop, where air only entered by a wind-sail," and no light, save "the glimmer of day through one small hatch down three or four decks." Yet it can be said there is

no unvarying difference in favor of artificial lighting in the new ships as compared to the old, except in conditions noted.

The institution of the general mess, while not as yet generally adapted, must prove a great boon to the service, in that it minimizes cooks and expenses, enhancing greatly the comfort of the men and improving the system of serving. A more clumsy, inconvenient or unsatisfactory system of subsisting a ship's company could not be devised than that hitherto obtaining in our ships of war; it is not only unbusiness-like, but especially unfitted to a community where compactness is so essential, and where a multiplicity of attendants is so undesirable. We cannot, in contemplating the present condition, refrain from a glance at the old, "The wretched herd, who at night kenneled worse than dogs, by day fed like them, crouching on their haunches around greasy mess-cloths, cutting with jack-knives or pulling to pieces with grimy fingers the chunks of 'salt horse' and 'duff,' which made their daily fare and which later in the cruise was both spoiled and scanty" (Gihon's "Thirty Years' Sanitary Progress in the Navy"). The general mess is provided for by regulation and is under the supervision of the paymaster. On the battleship "Kearsarge" there are 501 men in the general mess, which is divided into twenty-six sub-messes, for each of which an attendant is detailed.

Nine cooks are employed, classified according to their proficiency into cooks of the first, second, third and fourth classes, six of whom are stationed at the galley and three in the bakery.

The use of agate-ware in place of tin utensils, of knives and forks, of tables and benches in lieu of mess-cloths, is a most wholesome change.

Recent sanitary progress in the naval service has accomplished much for the crews in minor matters relating to comfort and health. The effort to establish a ship's store, where articles not included in the pay department store can be secured, is worthy of imitation throughout the service and should be official. Other matters of like import are baths, latrines ("heads") and drying-rooms. One of the most unsanitary conditions in our older ships was the "head." It was situated on the forecastle, generally without cover to prevent the action of heat, rain or spray; a trough, lined with lead and flushed by buckets or hand-pumps, constituted the outfit. As a ship in port usually swings to the wind, the odors were swept to the after-parts of the ship; a happy change in this connection is that the heads are now under cover and in all cases

continually flushed. In many of the new ships the area allotted is covered with tiles and closets of enameled iron are used. As a rule, firemen are allowed separate wash-rooms, and the use of shower-baths for the men is found on many of the ships.

In the matter of uniform and clothing, there is ground for criticism; in regard to the former, that it is too frequently changed. Officers complain justly, it would seem, of the multiplicity of uniforms.

The recent field of action of the naval service has so greatly enlarged that the matter of uniform has not kept pace with it. The substitution of khaki for the white working suit would be a decided advantage. It is not only more durable, but would save an immense amount of labor in washing. Another objection to the white uniform is noted in several of the reports, and this is, its unfitness for landing parties in presenting the best of targets. If the khaki is used, the battalion is always in uniform for landing, which to-day is so common an experience. For our own climate the clothing of the blue-jacket is suitable, for the tropics it is in some respects deficient. The cap is altogether unsuitable and should be exchanged for something lighter and broader; as a rule, the men use too heavy underwear, causing no little irritation of the skin.

One of the greatest advances in behalf of the Medical Department is the situation and equipment of the "sick bay" (hospital). Formerly located on the berth-deck, it is now, on our improved ships, placed much further aft, usually on the same level. In ships built and repaired as recently as the "Baltimore" and "Philadelphia" class, the classic spot was chosen for the accommodation of the sick, a point where there is the greatest motion, getting all the advantages of proximity to the head and galleys, with the ship's store beneath and point lockers forward.

Placed as the present tendency is, all these conditions are reversed, and the sick bay on the "Kearsarge," for example, is a well-lighted, airy and roomy space, where the sick can be comfortably cared for and operative measures undertaken with every reasonable hope of success. The sick bay of the "Kearsarge" is within an armored casemate on the starboard side of the berth-deck; it is 20 feet long, 17 feet wide, with a superficial area of 255 feet and a cubic capacity of 3,000 feet; it is heated by an independent steam circuit. The electric ventilating system delivers 116,544 cubic feet of air per hour. The natural light is insufficient, but the electric lighting is ample. The sick bay is fitted with metallic bunks,

four of which are modified "Street's" bunks, which can be utilized as stretchers. The floor is covered with thick linoleum. There is a closet and bath, with ample supply of hot and cold salt-water.

There is an ample and complete storeroom and dispensary.

From this slight consideration it is evident how much has been done for the improvement of the environment in which our seamen live, and how, considering the unnatural surroundings, every reasonable effort has been made to make their lives as comfortable and keep their health as perfect as possible. The naval medical officer is much more of a sanitarian than either physician or surgeon.

Sir William McCormic clearly intimates that the field of usefulness of the military medical officer as a surgeon, pure and simple, hardly exists in this day, and the fact applies with greater force to the naval service, for here the sanitary problem is admittedly more difficult and invites to its study and elucidation those officers of the medical corps who take a more enlarged and comprehensive view of their duties.

WARRENTON, VA., July 18, 1902.

STATE MEDICINE.

Abstract of the Proceedings of the Section on State Medicine, Thirty-third Annual Session of the American Medical Association, Saratoga Springs, N. Y., June 10-13, 1902.

"State Medicine, Past, Present and Future": Address by J. M. Emmert, M. D., of Atlantic, Ia., Chairman of the Section.—An interesting summary, for the most part paragraphic excerpt, of sanitary efforts and regulations from the earliest records to the present time, excepting the records of the sanitary and quarantine congresses of the United States, 1856-'60, and of the Citizens' Association of the City of New York, 1864-'65.

"Some 1,300 years before the Christian era, the code contained in the Mosaic Exodus laid down restrictions on every possible act that mankind may perform to impair or impede existence. Such as they are, it is hardly possible to improve upon them at this enlightened day. Moses instructed his people that those sanitary commands were inspired by a Supreme Being; that the only health officer in existence was the Almighty, who could watch over their

trespasses against the law. No matter where they might be, or what they might do, the Supreme Overseer would bring them to justice for the violation of the code of health." The address proceeds to instance the Justinian Law; Features of the Mosaic Law; Pestilence and Superstition; The First Quarantine; Extension of Quarantine; Quarantine in the United States; International Sanitary Conferences; Epidemics in the United States; Growth of the Hospital; Medico-legal Beginnings; Growth of Pharmacology; The First Pure Food Laws; Early Rules Governing Autopsies; Founders of Medical Jurisprudence; Active Growth of Legal Medicine; Knowledge of Anatomy by the Ancients; Early Dissections; Human Vivisection; Laws on Dissection; Opposition to Vivisection; Value of Vivisection; Vivisection Develops Sympathy; Our Debt to Vivisection; Vaccination; Tuberculosis; Tuberculosis Mortality; Bovine Tuberculosis Transmissible; What Statistics Prove; Illustrative Cases; Importation of Diseased Animals; Governmental Control; Tuberculosis Sanatoria; National Board of Health and Examiners; Regulation of Marriage; Prophylaxis Against Anarchy; Public Baths; Restriction of Venereal Diseases; Detention of Syphilitics; Abolish the Coroner; and sums up with conclusions as follows:

"All foregoing regulations, if established, will, I am sure, tend to improve the moral and physical welfare of our nation.

"State medicine is a creation of necessity in times of public danger, but its future development will be in proportion to the scientific character of its work, and to the appreciation on the part of the public of the economic and beneficent results of such work.

"The world's rapid transit and intercommunication brought on the high state of civilization and made the whole human race one family, so that people of every color, clime, language, government and creed have become one brotherhood, with a law of love and care for one another which fulfils the golden rule—'Love your neighbor as you do yourself.'"

First Session.

Sanitation and Politics. — Surgeon-General WALTER WYMAN, of the Marine Hospital Service, showed that, while sanitation and politics are often antagonistic, politics may be made to aid sanitation. Of course there were bad politics and bad politicians, but there were also good politics and good politicians, and in a free, self-governing country it was all important that the best classes in the community should take an active part in politics, and insist on

questions pertaining to sanitation and the public health being made public issues at elections. At present the rich more than the poor enjoyed the advantages to be derived from good hygiene and sanitary surroundings, but even they could not get the full benefit of them unless the poor were also protected, as disease breaking out in the ranks of the latter might spread to classes of the community far removed in social condition.

Discussion.—H. O. MARCY (Boston), STEPHEN SMITH BURT and S. A. KNOPF (New York), and SENECA EGBERT (Philadelphia) described the difficulties that had been encountered in these respective cities and the triumphs that had ultimately been obtained by bringing the force of public opinion to bear on political elections.

The Drainage Canal of the Valley of Mexico.—H. O. MARCY (Boston), who spent some time last winter in the adjacent republic as the guest of the Society of Civil Engineers, said it was a revelation to Americans to visit that country and see the progress which was being made, largely by means of American capital and under the direction of American enterprise. There was also, however, cause for marvel, as he showed in the work that had been done centuries ago—even before the time when the Pilgrim Fathers arrived on the New England coast. Plans of a very comprehensive character for the drainage of the valley were prepared as far back as 1607 by a French engineer named Henri Martin, and the works, though on a somewhat modified scale, were carried to completion in a period of eleven months, 15,000 Indians being employed on them. In spite, however, of this and other elaborate undertakings, the City of Mexico, besides being exposed to the danger of destruction from inundation, remained in a very unsanitary condition until the completion of the modern system of improvements, which was commenced in 1879 and finished in 1900, at a cost of $16,000,000. By these works five great objects were accomplished: (1) The city was freed from the danger of destruction by the flooding of the streams; (2) arrangements were made for the reception and disposal of the sewage of the valley; (3) the water level of the valley was placed under control; (4) the water was rendered available for dynamic purposes, and (5) provision was made for the irrigation of what had previously been an arid waste. Marcy did not hesitate to describe the undertaking as one without parallel in the mechanic achievements of the nations.

Discussion.—On the motion of KNOPF (New York), seconded

by BENJAMIN LEE (Philadelphia), a vote of thanks was accorded the author for his instructive paper. The latter speaker caused some amusement by telling of the introduction of wheelbarrows to save the natives from the laborious work of carrying the material for the embankments as they were wont to do in baskets on their heads. When the laborers saw the barrows they expressed delight at their ingenuity and eagerly distributed them, but when the American contractor went up next morning to see how the work was getting on, his surprise was not inconsiderable to find all the men carrying the barrows on their heads.

Microscopic Aid in the Diagnosis of Scarlet Fever.—W. K. JAQUES (Chicago) showed the value of microscopic evidence dependent upon knowledge of the presence or absence of *Diplococcus scarlatinæ*. Immunity in man and animals was the rule; susceptibility the exception. The throat might be susceptible and the rest of the body immune; but more important than the presence of the germ was the degree of its malignancy. In answer to questions, he said that by means of cultures taken from the throat a diagnosis of scarlet fever might often be made before the rash appeared, and it was possible by the same means to detect mixed infections of diphtheria and scarlet fever. In all cases of the latter kind, where there was any doubt, he advised the giving of antitoxin which, if it did no good in cases of scarlet fever, had never, so far as he was aware, been known to do any harm. He did not feel justified in saying much on the prospects that there are for the speedy discovery of an antitoxin for scarlet fever, or even in speaking too positively as to whether they should look for a prophylactic agent along the lines of vaccination or those of antitoxic treatment. A German investigator was reported to have rendered a number of persons immune by means of a serum taken from a patient who had recovered from scarlet fever. There were obvious objections to the use of human serum, notably the danger of conveying other diseases, and therefore it was desirable that further experiments should be conducted on animals to see whether the desired antitoxin could not be discovered.

Boards of Health and the Manufacture of Vaccine Virus and Antitoxin.—H. O. MARCY (Boston) introduced a discussion on this subject, which he explained was at present causing a great deal of discussion in Massachusetts, the question being whether they should rely on private manufacturers for these products or should allow the State to extend its paternal functions to the extent of undertaking their manufacture.

Discussion.—S. H. KNOPF (New York) said he had heard this question a good deal discussed in New York, and the opinion which he had expressed before, and now begged to repeat, was that control laboratories should be established in every State for the testing of serums and similar products. LEE (Philadelphia) was inclined to the view that the necessity which a manufacturer was under in his own interest, to maintain a high standard in the quality of his products, probably afforded a better guarantee of their purity and strength than was to be expected from their examination by officials who might be appointed for purely political reasons. At the same time some such control as the last speaker had suggested seemed called for, in view of the fact that some of the commercial virus put on the market in recent years had proved inert, while other virus had been found to be positively dangerous. C. B. JOHNSON (Champlain, Ill.) said the University of Illinois had been making its own vaccine, but they had failed to get it put on the market. He thought bodies of this kind should be allowed to make it and sell it at cost price. SENECA EGBERT (Philadelphia) said that he agreed with Lee as to its being the interest of manufacturing houses to maintain the quality of their products; but in the recent past demand for vaccine virus it appears as if some one had been careless, and as a result a prejudice had been created against vaccination which it was not going to be easy to remove. H. M. BRACKEN (Minneapolis) contended that any control which was established should be in connection with the Federal Government. H. MITCHELL (Asbury Park, N. J.) spoke of the difficulty of arranging the details of inspection; J. E. STUBBERT (Liberty, N. Y.) paid a tribute to the quality of the antituberculous serum produced by the Agricultural Department at Washington, and STEPHEN SMITH BURT (New York) claimed credit for the Board of Health of that city for its work in introducing antitoxins and practically exterminating smallpox by means of the vaccine it made on its own farm. The chairman said that Chicago continued to buy antitoxin from New York, in spite of the statement that some inferior goods from that city had once been palmed off on it. MARCY concluded the discussion by saying that the principle involved was one that should be discussed.

Second Session.

Symposium on Tuberculosis.—This was introduced by S. A. KNOPF (New York), who read a paper on the present aspect of the tuberculosis problem in the United States, State and municipal

sanatoriums. He gave a large amount of detailed information as to the steps being taken in different parts of the Union to combat the disease, the data being derived from replies to queries addressed to forty-seven States and Territories and a number of cities. There is no doubt, he said, that decided progress has been made during the last few years. While a few States and cities have made retrogressions, the majority have advanced. Much more, however, is required in the way of united effort, and with a view to this, what is principally to be aimed at is the establishment of a department of health in Washington and the passage of a general law having for its object the prevention of tuberculosis in man and beast. The first step should be the appointment of a national commission to formulate a law that would meet the exigencies of the case.

Results Obtained in the Treatment of Tuberculosis at Fort Bayard.—Major D. M. APPEL (Fort Bayard) described the methods of feeding, rest and exercise, and discussed the effects of altitude on the symptoms and blood. Since the establishment of the institution, 623 persons had been admitted, and of these 55 were readmitted after discharge. At the end of March, 174 persons continued under treatment, and the remaining 449 were accounted for as follows: Discharged, clinically cured, after an average residence of eight months, 33; convalescent, 52; improved, 157; unimproved (including 17 discharged in less than one month), 113; died (including 25 in less than one month), 94. In considering the significance of these figures, it has to be borne in mind that all classes of cases are taken, whereas in ordinary sanatoria only selected cases are admitted. A large proportion of the patients at Fort Bayard are from the tropics, and are feeble and emaciated, besides being in many cases addicted to the excessive use of alcohol.

Experience in the Treatment of Tuberculosis at Fort Stanton.—P. M. CARRINGTON (Marine Hospital Service). Out of 303 cases admitted since the institution was opened two and a half years ago, 45 have died, 9 discharged unimproved, 97 discharged improved, 37 discharged apparently or clinically cured, and 115 remain under treatment. One feature of the institution to which Surgeon-General Wyman attaches importance is a garden or farm which, while helping to make the hospital self-supporting, affords congenial employment in a suitable climate to a considerable number of patients in a state of convalescence.

Sanatorium Treatment of Tuberculosis.—S. G. BONNEY (Denver, Colo.) discussed the question from two points of view—the

welfare of the tuberculous class and the preservation of communities. There are three classes of cases for which institutional control is demanded: (*a*) Those in the last stages of tuberculosis and hopelessly impoverished; they are entitled to some care in their final days. (*b*) The tuberculous poor who, by temporary care, may be restored to their position as bread winners. (*c*) The ignorant and vicious, without regard to the stage of their disease, who wilfully or recklessly make themselves a public menace. On the other hand, there are certain classes for whom institutional treatment *per se* may still be regarded as *sub judice*—those, for example, of limited means who are in an incipient stage of disease, and those again with considerably more advanced infection, but in more comfortable circumstances. These cases must be determined on their individual merits. Over and above these there are cases in which residence in closed sanatoriums is contraindicated, and, on the other hand, cases in which, in addition to climatic advantages, sanatoria are of especial benefit.

Third Session.

The Relation of Human and Bovine Tuberculosis.—D. E. SALMON (Washington), after reviewing the investigations of De Jong, the Bureau of Animal Industry, Martin, Chauveau, Ravenel, Naughton and others, concludes that there is now sufficient evidence to prove that tubercle bacilli of human origin may infect cattle and produce a progressive and fatal disease in them; also that tubercle bacilli from bovine sources may infect man and produce a progressive and fatal disease. Ingestion tuberculosis may have its starting point in the glands of the neck or thorax, or even in the lungs, and the number of cases of human tuberculosis showing a primary intestinal lesion is no indication of the number of cases which occur from ingestion. We must depend largely upon clinical evidence for a determination of the relative frequency with which man is infected by tuberculous food. Statistics seem to show a considerable number of cases in man originating from contaminated food, but still it must be admitted that this evidence is indirect and not altogether trustworthy. It must be taken as an indication rather than as a positive demonstration. Considered with other evidence, it justifies us in assuming provisionally that there is considerable danger to human life from the ingestion of food containing living tubercle bacilli.

The Intertransmissibility of Human and Bovine Tuberculosis; a Review of Experimental Evidence.—R. R. DINWIDDIE (Fay-

etteville, Ark.). Does the experimental evidence tend to support the view that tuberculosis may at times have its origin in contagion from cattle? The question is purely speculative, and in a purely speculative question it is common for different deductions to be drawn from the same data. Koch has drawn the inference, largely, it would seem, from his experimental work, that bovine tuberculosis can constitute no factor in the initiation of tuberculosis in man. Few, Dinwiddie thinks, will be able to follow him in his process of reasoning. Whether or not Koch's view be correct, it can hardly be said that it derives any support from the purely experimental evidence. There is a wide field of investigation yet to be covered before sanitarians can feel justified in recommending a discontinuance of those safeguards against infection from tuberculous dairy products which an unwilling public are just beginning to appreciate.

Some Practical Points in the Treatment of Tuberculosis from the Sanatorium Standpoint.—J. EDWARD STUBBERT (New York) discussed the advantages of sanatoriums and open-air treatment, showing the importance of hygienic surroundings, good food and proper medicinal treatment. Each case must be treated largely on its own merits. In connection with the influence of heat and light, he thinks much is yet to be expected from the X-rays, though so far we are groping in the dark as to their properties, and the agency is not a safe one to place in the hands of the general practitioner.

M. P. RAVENEL (Philadelphia) showed exhibits and described experiments to show that Koch was not justified in denying the intercommunicability of human and bovine tuberculosis. On the motion of KNOPF, a vote of thanks was awarded RAVENEL for his address.

Discussion.—KNOPF (New York) laid stress on the fact that, while climatic change was of great advantage and much good was being done by means of sanatoria in different parts of the country, the large majority of tuberculous patients must of necessity always be treated at home. He denounced as dangerous the custom followed in New Mexico of using tuberculin to see if a patient was cured. BOARDMAN REED (Philadelphia) suggested that, with the view of absolutely demonstrating whether or not bovine and human tuberculosis were intercommunicable, prisoners condemned to death might be allowed to submit themselves as subjects for experimentation. C. L. MINOR (Asheville, N. C.) eulogized the French idea of a convalescent farm, which he was glad

to hear had been carried out at the Government sanatorium at Fort Stanton. At the close of the discussion, on the motion of S. A. KNOPF, seconded by BENJAMIN LEE (Philadelphia), a resolution was passed suggesting that the American Medical Association address an appeal to the Federal Government to create a national commission for the study, investigation and consideration of means for the prevention of tuberculosis in man and animals.

A lantern-slide demonstration of smallpox and diseases apt to be confounded therewith was given by JAY F. SCHAMBERG (Philadelphia).

Fourth Session.

Symposium on Tuberculosis; Sanitary Measures in New York City for the Prevention of Tuberculosis and their Results.—H. M. BIGGS (New York). There is no more serious problem connected with the public health, and yet none which gives more promise of good results. The measures adopted by the New York Board of Health are partly compulsory and partly voluntary, but the former are not strictly enforced. At first the medical profession was very much opposed to the ordinances, largely because they did not properly appreciate their aim and scope. In recent years a better understanding has prevailed, and the consequence is a large and steady increase in the number of cases reported to the board. It has been found that 80 per cent. of the cases ending fatally have previously been registered. Much good has been accomplished by improving the sanitary condition of the over-crowded tenement-house districts, which were found to be the principal centres of infection. On the other hand, harm has come from calling tuberculosis a contagious disease. It is communicable, but non-contagious. The pressing needs now are: Hospitals for advanced cases, sanatoria outside the city for incipient cases, the inspection of workshops, and the enforcement of sanitary measures in them and in public conveyances. With the cordial support of the medical profession, which is now being accorded by the best element in it, there is no reason why the almost complete eradication of the disease may not be looked for.

Discussion—The paper was favorably discussed by KNOPF, CARRINGTON (the chairman) and others, most of whom spoke of the influence for good which the action of the New York Board of Health is having all over the country. REYNOLDS (Louisville) said that they were not prepared in Chicago to put tuberculosis in the same category with smallpox and the plague by making it a

notifiable disease. BIGGS replied that it was necessary to get away from the idea that notifiable diseases were necessarily contagious. Malaria has been added to the list in New York, and it is proposed also to include pneumonia. He believes that eventually all infectious diseases—all diseases which are produced by micro-organisms—will be reportable. On the motion of KNOPF, a vote of thanks was accorded BIGGS for his admirable paper.

Sixth Session.

Smallpox and Vaccination. — HEMAN SPALDING (Chicago) pointed out various common sources of error in the records of the vaccinal status of cases. Among cases alleged to have taken smallpox after vaccination are included a large number in which the vaccination has only been performed after the patient has been exposed to the disease. Again, there are many whose history of having been vaccinated is unreliable, either on account of faulty technic, inert lymph or other cause.

Pneumonia; Its Increasing Prevalence and Fatality, with Suggestions for Individual and Communal Prophylaxis.—EDWARD F. WELLS (Chicago). Although the death-rate may not be greater than it was formerly, as he was inclined to think was the case before investigating the subject, the proportion of deaths from this cause to total deaths is increasing. The disease itself is much more prevalent, probably because of increased facilities for travel, the tendency of people to congregate, and other causes. This increase has been especially marked within the last twenty years. For individual prophylaxis, the nasal, pharyngeal and oral cavities should be kept as free as possible from accumulations of mucus; care should be taken not to become chilled when over-tired, and the individual should, as far as possible, keep out of range of the extruded pneumococcus-laden secretions of infected individuals. There may be simple means by which pneumonia may be prevented, but the fundamental information upon which prophylactic rules may be formulated is not yet at hand. Public health officers should seek assiduously for such knowledge, and as a preliminary step in this direction pneumonia should be placed on the list of notifiable diseases, the environment of pneumococcic patients carefully noted and the results analyzed.

Epidemicity and Increasing Fatality of Pneumonia.—JAMES J. WALSH (New York City) adduced facts to show that in cities the death-rate from pneumonia is increasing, while the general death-

rate is decreasing. Pneumonia is more infectious than tuberculosis, therefore the necessity for prophylaxis against it in crowded centres is more urgent.

Discussion.—N. S. DAVIS, JR. (Chicago) was particularly interested in the conclusion arrived at by Wells, which seemed to be justified, that the mortality from the disease is not increasing, the impression of the profession having been rather in the opposite direction. The subject requires to be ventilated, both among medical men and their patients, with the view of securing the adoption of more precautionary measures. GEORGE M. KOBER (Washington) suggested that the increasing use of alcohol might be a predisposing factor in the production of pneumonia. He agreed with previous speakers that general as well as individual prophylactic measures were essential to the prevention of its spread.

Influenza.—SMITH ELY JELLIFFE (New York City) called attention to the increasing importance of the influenza bacillus in human pathology. Its action on the nervous system is particularly marked. The psychoses are mainly of the depressive type, and as a consequence there is a tendency to suicide.

In *a further study of the influenza bacillus,* F. ELDRIDGE WYNKOOP (Chicago) described the action of *Bacillus influenzæ* upon the mucous membrane.

Venereal Diseases.—A committee, consisting of H. D. HOLTON (Vermont) chairman, GEORGE M. KOBER (Washington) and W. H. SANDERS (Alabama), was appointed to co-operate with a committee from the Section on Cutaneous Diseases in urging on the House of Delegates the importance of bringing about a propaganda in the different States, with a view to the adoption of measures for the prophylaxis of venereal diseases. The holding of a national meeting, under the auspices of the American Medical Association, similar to that held in Brussels under the authority of the Belgian Government, was also suggested.

New Office-Bearers. — The new officers of the Section were elected as follows: Chairman, H. M. Bracken, Minneapolis, Minn.; secretary, George T. Swartz, Rhode Island; member of the House of Delegates. Arthur R. Reynolds, Chicago.

PUBLIC HEALTH AND MARINE HOSPITAL SERVICE OF THE UNITED STATES.

An Act to Increase the Efficiency and Change the Name of the United States Marine Hospital Service.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the United States Marine Hospital Service shall hereafter be known and designated as the Public Health and Marine Hospital Service of the United States, and the Supervising Surgeon-General and the officers now or hereafter commissioned under the Act of January 4, 1899, entitled "An Act to regulate appointments in the Marine Hospital Service of the United States," and Acts amendatory thereof, shall hereafter be known as the surgeon-general, surgeons, passed assistant surgeons and assistant surgeons of the Public Health and Marine Hospital Service of the United States. Nothing in this Act contained shall be held or construed to discharge any of the officers above named, or any of the acting assistant surgeons, pharmacists and other employés of the Marine Hospital Service, or to deprive any officer of his commission or the benefits derived by longevity of service. The care of sick and disabled seamen and all other duties now required by law to be performed by the Marine Hospital Service shall hereafter be performed by the Public Health and Marine Hospital Service, and all funds and appropriations now provided by law for use by the Marine Hospital Service and all properties and rights pertaining to said service shall be available for use for like purposes and in like manner, under the Treasury Department, by the Public Health and Marine Hospital Service.

Sec. 2. That the salary of the Surgeon-General of the Public Health and Marine Hospital Service shall be $5,000 per annum, and the salaries and allowances of the commissioned medical officers of said service shall be the same as now provided by regulations of the Marine Hospital Service.

Sec. 3. That commissioned medical officers, when detailed by the Surgeon-General for duty in the Public Health and Marine Hospital Bureau at Washington, District of Columbia, in charge of the administrative divisions thereof—namely, marine hospitals and relief, domestic quarantine, foreign and insular quarantine, personnel and accounts, sanitary reports and statistics, and scien-

tific research, shall, while thus serving, be assistant surgeons-general of the Public Health and Marine Hospital Service, but their pay and allowances shall be the same as now provided by regulations of the Marine Hospital Service for officers in charge of said divisions; and the senior officer thus serving shall be the assistant within the meaning of Section 178, Revised Statutes of the United States: *Provided, however,* That no such officer shall be detailed in charge of said divisions who is below the rank of passed assistant surgeon.

Sec. 4. That the President is authorized, in his discretion, to utilize the Public Health and Marine Hospital Service in times of threatened or actual war to such extent and in such manner as shall, in his judgment, promote the public interest without, however, in any wise impairing the efficiency of the service for the purposes for which the same was created and is maintained.

Sec. 5. That there shall be an advisory board for the hygienic laboratory provided by the Act of Congress approved March 3, 1901, for consultation with the Surgeon-General of the Public Health and Marine Hospital Service relative to the investigations to be inaugurated, and the methods of conducting the same, in said laboratory. Said board shall consist of three competent experts, to be detailed from the Army, the Navy and the Bureau of Animal Industry by the Surgeon-General of the Army, the Surgeon-General of the Navy and the Secretary of Agriculture, respectively, which experts, with the director of the said laboratory, shall be *ex officio* members of the board, and serve without additional compensation. Five other members of said board shall be appointed by the Surgeon-General of the Public Health and Marine Hospital Service, with the approval of the Secretary of the Treasury, who shall be skilled in laboratory work in its relation to the public health, and not in the regular employment of the Government. The said five members shall each receive compensation of $10 per diem while serving in conference, as aforesaid, together with allowance for actual and necessary travelling expenses and hotel expenses while in conference. Said conference is not to exceed ten days in any one fiscal year. The term of service of the five members of said board, not in the regular employment of the Government, first appointed shall be so arranged that one of said members shall retire each year, the subsequent appointments to be for a period of five years. Appointments to fill vacancies occurring in a manner other than as above provided shall be made for the unexpired term of the member whose place has become vacant.

Sec. 6. That there shall be appointed by the Surgeon-General, with the approval of the Secretary of the Treasury, whenever, in the opinion of the Surgeon-General, commissioned medical officers of the Public Health and Marine Hospital Service are not available for this duty by detail, competent persons to take charge of the divisions, respectively, of chemistry, zoology, and pharmacology of the hygienic laboratory, who shall each receive such pay as shall be fixed by the Surgeon-General, with the approval of the Secretary of the Treasury. The director of the said laboratory shall be an officer detailed from the corps of commissioned medical officers of the Public Health and Marine Hospital Service, as now provided by regulations for said detail from the Marine Hospital Service, and while thus serving shall have the pay and emoluments of a surgeon: *Provided,* That all commissioned officers of the Public Health and Marine Hospital Service not below the grade of passed assistant surgeon shall be eligible to assignment to duty in charge of the said divisions of the hygienic laboratory, and while serving in such capacity shall be entitled to the pay and emoluments of their rank.

Sec. 7. That when, in the opinion of the Surgeon-General of the Public Health and Marine Hospital Service of the United States, the interests of the public health would be promoted by a conference of said service with State or Territorial boards of health, quarantine authorities, or State health officers, the District of Columbia included, he may invite as many of said health and quarantine authorities as he deems necessary or proper to send delegates, not more than one from each State or Territory and District of Columbia, to said conference: *Provided,* That an annual conference of the health authorities of all the States and Territories and the District of Columbia shall be called, each of said States, Territories and the District of Columbia to be entitled to one delegate: *And provided further,* That it shall be the duty of the said Surgeon-General to call a conference upon the application of not less than five State or Territorial boards of health, quarantine authorities or State health officers, each of said States and Territories joining in such request to be represented by one delegate.

Sec. 8. That to secure uniformity in the registration of mortality, morbidity and vital statistics it shall be the duty of the Surgeon-General of the Public Health and Marine Hospital Service, after the annual conference required by Section 7 to be called, to prepare and distribute suitable and necessary forms for the collection and compilation of such statistics, and said statistics, when

transmitted to the Public Health and Marine Hospital Bureau on said forms, shall be compiled and published by the Public Health and Marine Hospital Service as a part of the health reports published by said service.

Sec. 9. That the President shall, from time to time, prescribe rules for the conduct of the Public Health and Marine Hospital Service. He shall also prescribe regulations respecting its internal administration and discipline and the uniforms of its officers and employés. It shall be the duty of the Surgeon-General to transmit annually to the Secretary of the Treasury, for transmission by said Secretary to Congress, a full and complete report of the transactions of said service, including a detailed statement of receipts and disbursements.

Approved July 1, 1902.

BANQUET TO DR. STERNBERG.

THE ARMY MEDICAL CORPS.

It was a highly representative body that gathered last Friday evening, June 13th, at Delmonico's, in New York, to do honor and to pay homage to the retired Surgeon-General of the Army, George M. Sternberg. Representative practitioners of the East and the West, of the North and the South were present, and the occasion was a most enjoyable one.

Dr. E. G. Janeway, in his introductory remarks, first read a telegram received from Major-General H. C. Corbin, in which he offered congratulations to Dr. Sternberg and his sense of appreciation of duty well done. Further, in speaking of Dr. Sternberg and of his long life and many years of activity, Dr. Janeway remarked that on being retired at the age of sixty-four it could well be said that Dr. Sternberg did not retire on any grounds of insufficiency; he was not responsible for the date of his birth, and it was by an act of Congress only that he was forced to give up this particular line of activity. He expressed the hope, however, for this illustrious student of bacteriology, fellow of the American Association of Hygienists, Commissioner on the Study of Yellow Fever, author and worker, that many years would be left him in which he could carry on his work. Dr. Janeway said that it was a matter of pride for the American physician to point out the long list of achievements and attainments of their illustrious guest,

which bespoke such a high mental endowment and was an evidence of work well done.

In response to this toast, General Sternberg said: "Words fail me in which to express my high appreciation of the compliment you have paid me by making me your guest of honor upon this occasion. Such a compliment, coming to me from the leading members of the medical profession at a time when by the operation of law I have reached the end of my active service as a medical officer of the Army, is especially gratifying. Accepting this testimonial as evidence of your approval of my efforts for the promotion of medical science and of the interests of the Medical Corps of the Army, I thank you one and all most sincerely. At the same time I feel that the results accomplished have fallen much below my earnest desires and perhaps have not been commensurate with the opportunities I have had.

"My first feeble efforts in the field of investigation which has always presented the greatest attraction for me—the etiology and prevention of infectious diseases—were made at a time when no one in this country was prepared to give me instruction in methods of research and I was, to a large extent, thrown upon my own resources. The tubercle bacillus, the typhoid bacillus and many other well-known pathogenic micro-organisms had not yet been discovered and a most promising field of investigation was presented to my view, for I was strong in the belief that infectious diseases must be due to infectious agents capable of self-multiplication—*i. e.*, to living disease germs. It so happened that the principal problem which I was called upon to solve was one of the most difficult that has engaged the attention of investigators, and one in which bacteriological methods have proved to be of no avail except in establishing a negative proposition—*i. e.*, that yellow fever is not due to a micro-organism of this class. The time and persistent work devoted by me to an investigation of the etiology of this disease might have given more fruitful results if my attention had been turned in some other direction, but while I met with a serious disappointment in my failure to discover the yellow-fever germ, I have the satisfaction of knowing that my researches cleared the way for the subsequent demonstration by Reed and his associates of the method by which this disease is transmitted from man to man. From a practical point of view this is all we require to guide us to a successful measure of prophylaxis, as has been recently demonstrated in the island of Cuba.

"But I must not occupy your time by further reference to this

portion of my life work. For nine years I have scarcely looked through a microscope, my time having been fully occupied by the important duties entrusted to my charge as Surgeon-General of the Army. While I have not been able personally to prosecute my researches having in view the advancement of medical science, it has been a source of great satisfaction to me that I have been able to provide the means and appliances for other medical officers of the Army to do so. When I commenced my research work I had to provide my own microscope and material of all kinds. There not only was no bacteriological laboratory or apparatus at any military post, but so far as I am informed none at any medical school or university in the country. At present we have a thoroughly equipped laboratory in connection with our Army Medical School in the city of Washington, at all of our general hospitals in this country and in the Philippines, and also at every military post of any importance throughout the United States. We also have a considerable number of medical officers who have been instructed at the Army Medical School, who are well prepared to take advantage of their opportunities for research work.

"The Medical Corps of the Army is to-day in a high state of efficiency and I am proud to have been the chief of this *corps d'elite* during a period when its efficiency and usefulness had been put to so severe a test. The profession, also, has reason to be proud of its members who are attached to the military service of the country. Our senior surgeons have been called upon to fill positions of great trust and responsibility during the past four years and have, as a rule, acquitted themselves with great credit. As chief surgeons in the Philippines, in Cuba and in Porto Rico, they have been to a large extent responsible for the administration of the affairs of the Medical Department and have been called upon not only to protect our troops from the ravages of infectious diseases, but to perform a similar service for the natives of the various islands in which American soldiers have been called upon to serve. In all of these islands we found small-pox to be widely prevalent and in all it has been practically stamped out. In Cuba yellow fever was a scourge which threatened to do us greater injury than the bullets of our foes. But, thanks to Reed and his colleagues on the board sent to study this disease, we now know how to prevent its extension and have practically stamped it out in the city of Havana, which has for many years been its principal endemic focus in the West Indies. In the Philippines bubonic plague has been kept in check by the strenuous exertions of our

medical officers and the latest reports indicate that it has almost disappeared from the city of Manila. Unfortunately, Asiatic cholera has recently gained a foothold in Manila and the neighboring provinces. Colonel Maus, who is at present acting as Commissioner of Public Health, is fighting this scourge with every means known to science and hopes to be able to avert a serious epidemic.

"Time will not permit me to dwell further upon the achievements of our medical officers during and since the Spanish-American War, but I make bold to say that as sanitarians, as surgeons, as all-round practitioners of medicine, and as scientific investigators, we have in our ranks many medical officers who are an honor to the corps and to the profession.

"I also point with pride to our general and post hospitals. The general hospitals at the Presidio, at Fort Bayard, at Washington Barracks, and at the Hot Springs, Ark., are models which bear comparison with the best civil or military hospitals in any part of the world. The same is true of our principal hospitals in the Philippines. In this country nearly every military post of any importance has a modern hospital well adapted to the requirements of the military service, provided with a well-equipped laboratory for clinical and research work, and an operating room which would be regarded with satisfaction by any surgeon accustomed to the precautions necessary for successful aseptic surgery.

"When I look back for forty-one years to the time when I entered the Army as an assistant surgeon and consider the great advancement in scientific medicine since that day, and the superior facilities which now exist for rendering efficient aid to the sick and wounded of our Army, I cannot help regretting that I knew so little then and that now I have reached the end of my active career and, like an old work-horse, am turned out to graze at a time when the results of medical and surgical practice are so much more satisfactory. On the other hand, I confess to a certain feeling of exhilaration and a disposition to kick up my heels at the thought that I am my own master and can graze in such fields as suit me best. One of my oldest and best friends, now seated at this table, will remember when at the mature age of nineteen years we left our rural homes in Otsego County for the purpose of teaching the young idea how to shoot in the New Germantown Academy, in the State of New Jersey. When I graduated in medicine at the College of Physicians and Surgeons, in this city, my ambition did not extend beyond the hope of securing a living practice in the coun-

try. My first venture was at a little town on Long Island, where a vacancy was supposed to exist, owing to the recent death of an old and highly respected physician. Apparently, I was not able to fill this vacancy, for my professional shingle was displayed for several months and I did not receive a single professional call. Not being appreciated in this conservative neighborhood, I moved my base of operations to Elizabeth City, N. J., and was getting a little practice when the war tocsin sounded and my future career was determined by the favorable verdict of an army medical examining board as to my qualifications for duty as an army surgeon. Within three months I was engaged in infecting gunshot wounds with dirty fingers and unsterilized cold-water dressings, and in amputating the legs and arms of unfortunate soldiers who had sustained gunshot fractures in the disastrous battle of the first 'Bull Run.' We were all blissfully ignorant of pathogenic micrococci and bacilli in those days, but having had Willard Parker as my professor of surgery, and Sands as demonstrator of anatomy, I was not entirely unprepared for the responsibilities of the battlefield.

"It would perhaps have been more profitable if I occupied the time at my disposal upon this memorable occasion in speaking in some detail of the advancement of medicine and surgery since my student days, but most of you are better qualified to discuss this interesting topic than I am, and I am sure you will pardon me if my remarks have been more or less personal and reminiscent in character. I find it hard to realize that the country youth of my name who came to this city as a student of medicine in 1858 is here to-day as the honored guest of leading members of the medical profession in the United States, whose names are as household words wherever students of scientific medicine are assembled.

"I thank you, gentlemen, again and most sincerely for this kind testimonial of your esteem. Your endorsement of my life work is of more value to me than military honors or financial competency. I have at times felt discouraged and disposed to think that I have fallen far short of what might reasonably have been expected in view of my opportunities. But it is reserved for the very few to accomplish great things, and the physician who has won the esteem of those of his profession who are best qualified to judge of his work may well be satisfied, although he realizes that he has but a small share in promoting the advancement of scientific medicine and the interests of our beloved and humane profession."

notifiable disease. BIGGS replied that it was necessary to get away from the idea that notifiable diseases were necessarily contagious. Malaria has been added to the list in New York, and it is proposed also to include pneumonia. He believes that eventually all infectious diseases—all diseases which are produced by micro-organisms—will be reportable. On the motion of KNOPF, a vote of thanks was accorded BIGGS for his admirable paper.

Sixth Session.

Smallpox and Vaccination. — HEMAN SPALDING (Chicago) pointed out various common sources of error in the records of the vaccinal status of cases. Among cases alleged to have taken smallpox after vaccination are included a large number in which the vaccination has only been performed after the patient has been exposed to the disease. Again, there are many whose history of having been vaccinated is unreliable, either on account of faulty technic, inert lymph or other cause.

Pneumonia; Its Increasing Prevalence and Fatality, with Suggestions for Individual and Communal Prophylaxis.—EDWARD F. WELLS (Chicago). Although the death-rate may not be greater than it was formerly, as he was inclined to think was the case before investigating the subject, the proportion of deaths from this cause to total deaths is increasing. The disease itself is much more prevalent, probably because of increased facilities for travel, the tendency of people to congregate, and other causes. This increase has been especially marked within the last twenty years. For individual prophylaxis, the nasal, pharyngeal and oral cavities should be kept as free as possible from accumulations of mucus; care should be taken not to become chilled when over-tired, and the individual should, as far as possible, keep out of range of the extruded pneumococcus-laden secretions of infected individuals. There may be simple means by which pneumonia may be prevented, but the fundamental information upon which prophylactic rules may be formulated is not yet at hand. Public health officers should seek assiduously for such knowledge, and as a preliminary step in this direction pneumonia should be placed on the list of notifiable diseases, the environment of pneumococcic patients carefully noted and the results analyzed.

Epidemicity and Increasing Fatality of Pneumonia.—JAMES J. WALSH (New York City) adduced facts to show that in cities the death-rate from pneumonia is increasing, while the general death-

rate is decreasing. Pneumonia is more infectious than tuberculosis, therefore the necessity for prophylaxis against it in crowded centres is more urgent.

Discussion.—N. S. DAVIS, JR. (Chicago) was particularly interested in the conclusion arrived at by Wells, which seemed to be justified, that the mortality from the disease is not increasing, the impression of the profession having been rather in the opposite direction. The subject requires to be ventilated, both among medical men and their patients, with the view of securing the adoption of more precautionary measures. GEORGE M. KOBER (Washington) suggested that the increasing use of alcohol might be a predisposing factor in the production of pneumonia. He agreed with previous speakers that general as well as individual prophylactic measures were essential to the prevention of its spread.

Influenza.—SMITH ELY JELLIFFE (New York City) called attention to the increasing importance of the influenza bacillus in human pathology. Its action on the nervous system is particularly marked. The psychoses are mainly of the depressive type, and as a consequence there is a tendency to suicide.

In *a further study of the influenza bacillus,* F. ELDRIDGE WYNKOOP (Chicago) described the action of *Bacillus influenzæ* upon the mucous membrane.

Venereal Diseases.—A committee, consisting of H. D. HOLTON (Vermont) chairman, GEORGE M. KOBER (Washington) and W. H. SANDERS (Alabama), was appointed to co-operate with a committee from the Section on Cutaneous Diseases in urging on the House of Delegates the importance of bringing about a propaganda in the different States, with a view to the adoption of measures for the prophylaxis of venereal diseases. The holding of a national meeting, under the auspices of the American Medical Association, similar to that held in Brussels under the authority of the Belgian Government, was also suggested.

New Office-Bearers. — The new officers of the Section were elected as follows: Chairman, H. M. Bracken, Minneapolis, Minn.; secretary, George T. Swartz, Rhode Island; member of the House of Delegates. Arthur R. Reynolds, Chicago.

PUBLIC HEALTH AND MARINE HOSPITAL SERVICE OF THE UNITED STATES.

An Act to Increase the Efficiency and Change the Name of the United States Marine Hospital Service.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the United States Marine Hospital Service shall hereafter be known and designated as the Public Health and Marine Hospital Service of the United States, and the Supervising Surgeon-General and the officers now or hereafter commissioned under the Act of January 4, 1899, entitled "An Act to regulate appointments in the Marine Hospital Service of the United States," and Acts amendatory thereof, shall hereafter be known as the surgeon-general, surgeons, passed assistant surgeons and assistant surgeons of the Public Health and Marine Hospital Service of the United States. Nothing in this Act contained shall be held or construed to discharge any of the officers above named, or any of the acting assistant surgeons, pharmacists and other employés of the Marine Hospital Service, or to deprive any officer of his commission or the benefits derived by longevity of service. The care of sick and disabled seamen and all other duties now required by law to be performed by the Marine Hospital Service shall hereafter be performed by the Public Health and Marine Hospital Service, and all funds and appropriations now provided by law for use by the Marine Hospital Service and all properties and rights pertaining to said service shall be available for use for like purposes and in like manner, under the Treasury Department, by the Public Health and Marine Hospital Service.

Sec. 2. That the salary of the Surgeon-General of the Public Health and Marine Hospital Service shall be $5,000 per annum, and the salaries and allowances of the commissioned medical officers of said service shall be the same as now provided by regulations of the Marine Hospital Service.

Sec. 3. That commissioned medical officers, when detailed by the Surgeon-General for duty in the Public Health and Marine Hospital Bureau at Washington, District of Columbia, in charge of the administrative divisions thereof—namely, marine hospitals and relief, domestic quarantine, foreign and insular quarantine, personnel and accounts, sanitary reports and statistics, and scien-

tific research, shall, while thus serving, be assistant surgeons-general of the Public Health and Marine Hospital Service, but their pay and allowances shall be the same as now provided by regulations of the Marine Hospital Service for officers in charge of said divisions; and the senior officer thus serving shall be the assistant within the meaning of Section 178, Revised Statutes of the United States: *Provided, however,* That no such officer shall be detailed in charge of said divisions who is below the rank of passed assistant surgeon.

Sec. 4. That the President is authorized, in his discretion, to utilize the Public Health and Marine Hospital Service in times of threatened or actual war to such extent and in such manner as shall, in his judgment, promote the public interest without, however, in any wise impairing the efficiency of the service for the purposes for which the same was created and is maintained.

Sec. 5. That there shall be an advisory board for the hygienic laboratory provided by the Act of Congress approved March 3, 1901, for consultation with the Surgeon-General of the Public Health and Marine Hospital Service relative to the investigations to be inaugurated, and the methods of conducting the same, in said laboratory. Said board shall consist of three competent experts, to be detailed from the Army, the Navy and the Bureau of Animal Industry by the Surgeon-General of the Army, the Surgeon-General of the Navy and the Secretary of Agriculture, respectively, which experts, with the director of the said laboratory, shall be *ex officio* members of the board, and serve without additional compensation. Five other members of said board shall be appointed by the Surgeon-General of the Public Health and Marine Hospital Service, with the approval of the Secretary of the Treasury, who shall be skilled in laboratory work in its relation to the public health, and not in the regular employment of the Government. The said five members shall each receive compensation of $10 per diem while serving in conference, as aforesaid, together with allowance for actual and necessary travelling expenses and hotel expenses while in conference. Said conference is not to exceed ten days in any one fiscal year. The term of service of the five members of said board, not in the regular employment of the Government, first appointed shall be so arranged that one of said members shall retire each year, the subsequent appointments to be for a period of five years. Appointments to fill vacancies occurring in a manner other than as above provided shall be made for the unexpired term of the member whose place has become vacant.

Sec. 6. That there shall be appointed by the Surgeon-General, with the approval of the Secretary of the Treasury, whenever, in the opinion of the Surgeon-General, commissioned medical officers of the Public Health and Marine Hospital Service are not available for this duty by detail, competent persons to take charge of the divisions, respectively, of chemistry, zoology, and pharmacology of the hygienic laboratory, who shall each receive such pay as shall be fixed by the Surgeon-General, with the approval of the Secretary of the Treasury. The director of the said laboratory shall be an officer detailed from the corps of commissioned medical officers of the Public Health and Marine Hospital Service, as now provided by regulations for said detail from the Marine Hospital Service, and while thus serving shall have the pay and emoluments of a surgeon: *Provided,* That all commissioned officers of the Public Health and Marine Hospital Service not below the grade of passed assistant surgeon shall be eligible to assignment to duty in charge of the said divisions of the hygienic laboratory, and while serving in such capacity shall be entitled to the pay and emoluments of their rank.

Sec. 7. That when, in the opinion of the Surgeon-General of the Public Health and Marine Hospital Service of the United States, the interests of the public health would be promoted by a conference of said service with State or Territorial boards of health, quarantine authorities, or State health officers, the District of Columbia included, he may invite as many of said health and quarantine authorities as he deems necessary or proper to send delegates, not more than one from each State or Territory and District of Columbia, to said conference: *Provided,* That an annual conference of the health authorities of all the States and Territories and the District of Columbia shall be called, each of said States, Territories and the District of Columbia to be entitled to one delegate: *And provided further,* That it shall be the duty of the said Surgeon-General to call a conference upon the application of not less than five State or Territorial boards of health, quarantine authorities or State health officers, each of said States and Territories joining in such request to be represented by one delegate.

Sec. 8. That to secure uniformity in the registration of mortality, morbidity and vital statistics it shall be the duty of the Surgeon-General of the Public Health and Marine Hospital Service, after the annual conference required by Section 7 to be called, to prepare and distribute suitable and necessary forms for the collection and compilation of such statistics, and said statistics, when

transmitted to the Public Health and Marine Hospital Bureau on said forms, shall be compiled and published by the Public Health and Marine Hospital Service as a part of the health reports published by said service.

Sec. 9. That the President shall, from time to time, prescribe rules for the conduct of the Public Health and Marine Hospital Service. He shall also prescribe regulations respecting its internal administration and discipline and the uniforms of its officers and employés. It shall be the duty of the Surgeon-General to transmit annually to the Secretary of the Treasury, for transmission by said Secretary to Congress, a full and complete report of the transactions of said service, including a detailed statement of receipts and disbursements.

Approved July 1, 1902.

BANQUET TO DR. STERNBERG.

THE ARMY MEDICAL CORPS.

It was a highly representative body that gathered last Friday evening, June 13th, at Delmonico's, in New York, to do honor and to pay homage to the retired Surgeon-General of the Army, George M. Sternberg. Representative practitioners of the East and the West, of the North and the South were present, and the occasion was a most enjoyable one.

Dr. E. G. Janeway, in his introductory remarks, first read a telegram received from Major-General H. C. Corbin, in which he offered congratulations to Dr. Sternberg and his sense of appreciation of duty well done. Further, in speaking of Dr. Sternberg and of his long life and many years of activity, Dr. Janeway remarked that on being retired at the age of sixty-four it could well be said that Dr. Sternberg did not retire on any grounds of insufficiency; he was not responsible for the date of his birth, and it was by an act of Congress only that he was forced to give up this particular line of activity. He expressed the hope, however, for this illustrious student of bacteriology, fellow of the American Association of Hygienists, Commissioner on the Study of Yellow Fever, author and worker, that many years would be left him in which he could carry on his work. Dr. Janeway said that it was a matter of pride for the American physician to point out the long list of achievements and attainments of their illustrious guest,

which bespoke such a high mental endowment and was an evidence of work well done.

In response to this toast, General Sternberg said: "Words fail me in which to express my high appreciation of the compliment you have paid me by making me your guest of honor upon this occasion. Such a compliment, coming to me from the leading members of the medical profession at a time when by the operation of law I have reached the end of my active service as a medical officer of the Army, is especially gratifying. Accepting this testimonial as evidence of your approval of my efforts for the promotion of medical science and of the interests of the Medical Corps of the Army, I thank you one and all most sincerely. At the same time I feel that the results accomplished have fallen much below my earnest desires and perhaps have not been commensurate with the opportunities I have had.

"My first feeble efforts in the field of investigation which has always presented the greatest attraction for me—the etiology and prevention of infectious diseases—were made at a time when no one in this country was prepared to give me instruction in methods of research and I was, to a large extent, thrown upon my own resources. The tubercle bacillus, the typhoid bacillus and many other well-known pathogenic micro-organisms had not yet been discovered and a most promising field of investigation was presented to my view, for I was strong in the belief that infectious diseases must be due to infectious agents capable of self-multiplication—*i. e.*, to living disease germs. It so happened that the principal problem which I was called upon to solve was one of the most difficult that has engaged the attention of investigators, and one in which bacteriological methods have proved to be of no avail except in establishing a negative proposition—*i. e.*, that yellow fever is not due to a micro-organism of this class. The time and persistent work devoted by me to an investigation of the etiology of this disease might have given more fruitful results if my attention had been turned in some other direction, but while I met with a serious disappointment in my failure to discover the yellow-fever germ, I have the satisfaction of knowing that my researches cleared the way for the subsequent demonstration by Reed and his associates of the method by which this disease is transmitted from man to man. From a practical point of view this is all we require to guide us to a successful measure of prophylaxis, as has been recently demonstrated in the island of Cuba.

"But I must not occupy your time by further reference to this

portion of my life work. For nine years I have scarcely looked through a microscope, my time having been fully occupied by the important duties entrusted to my charge as Surgeon-General of the Army. While I have not been able personally to prosecute my researches having in view the advancement of medical science, it has been a source of great satisfaction to me that I have been able to provide the means and appliances for other medical officers of the Army to do so. When I commenced my research work I had to provide my own microscope and material of all kinds. There not only was no bacteriological laboratory or apparatus at any military post, but so far as I am informed none at any medical school or university in the country. At present we have a thoroughly equipped laboratory in connection with our Army Medical School in the city of Washington, at all of our general hospitals in this country and in the Philippines, and also at every military post of any importance throughout the United States. We also have a considerable number of medical officers who have been instructed at the Army Medical School, who are well prepared to take advantage of their opportunities for research work.

"The Medical Corps of the Army is to-day in a high state of efficiency and I am proud to have been the chief of this *corps d'elite* during a period when its efficiency and usefulness had been put to so severe a test. The profession, also, has reason to be proud of its members who are attached to the military service of the country. Our senior surgeons have been called upon to fill positions of great trust and responsibility during the past four years and have, as a rule, acquitted themselves with great credit. As chief surgeons in the Philippines, in Cuba and in Porto Rico, they have been to a large extent responsible for the administration of the affairs of the Medical Department and have been called upon not only to protect our troops from the ravages of infectious diseases, but to perform a similar service for the natives of the various islands in which American soldiers have been called upon to serve. In all of these islands we found small-pox to be widely prevalent and in all it has been practically stamped out. In Cuba yellow fever was a scourge which threatened to do us greater injury than the bullets of our foes. But, thanks to Reed and his colleagues on the board sent to study this disease, we now know how to prevent its extension and have practically stamped it out in the city of Havana, which has for many years been its principal endemic focus in the West Indies. In the Philippines bubonic plague has been kept in check by the strenuous exertions of our

medical officers and the latest reports indicate that it has almost disappeared from the city of Manila. Unfortunately, Asiatic cholera has recently gained a foothold in Manila and the neighboring provinces. Colonel Maus, who is at present acting as Commissioner of Public Health, is fighting this scourge with every means known to science and hopes to be able to avert a serious epidemic.

"Time will not permit me to dwell further upon the achievements of our medical officers during and since the Spanish-American War, but I make bold to say that as sanitarians, as surgeons, as all-round practitioners of medicine, and as scientific investigators, we have in our ranks many medical officers who are an honor to the corps and to the profession.

"I also point with pride to our general and post hospitals. The general hospitals at the Presidio, at Fort Bayard, at Washington Barracks, and at the Hot Springs, Ark., are models which bear comparison with the best civil or military hospitals in any part of the world. The same is true of our principal hospitals in the Philippines. In this country nearly every military post of any importance has a modern hospital well adapted to the requirements of the military service, provided with a well-equipped laboratory for clinical and research work, and an operating room which would be regarded with satisfaction by any surgeon accustomed to the precautions necessary for successful aseptic surgery.

"When I look back for forty-one years to the time when I entered the Army as an assistant surgeon and consider the great advancement in scientific medicine since that day, and the superior facilities which now exist for rendering efficient aid to the sick and wounded of our Army, I cannot help regretting that I knew so little then and that now I have reached the end of my active career and, like an old work-horse, am turned out to graze at a time when the results of medical and surgical practice are so much more satisfactory. On the other hand, I confess to a certain feeling of exhilaration and a disposition to kick up my heels at the thought that I am my own master and can graze in such fields as suit me best. One of my oldest and best friends, now seated at this table, will remember when at the mature age of nineteen years we left our rural homes in Otsego County for the purpose of teaching the young idea how to shoot in the New Germantown Academy, in the State of New Jersey. When I graduated in medicine at the College of Physicians and Surgeons, in this city, my ambition did not extend beyond the hope of securing a living practice in the coun-

try. My first venture was at a little town on Long Island, where a vacancy was supposed to exist, owing to the recent death of an old and highly respected physician. Apparently, I was not able to fill this vacancy, for my professional shingle was displayed for several months and I did not receive a single professional call. Not being appreciated in this conservative neighborhood, I moved my base of operations to Elizabeth City, N. J., and was getting a little practice when the war tocsin sounded and my future career was determined by the favorable verdict of an army medical examining board as to my qualifications for duty as an army surgeon. Within three months I was engaged in infecting gunshot wounds with dirty fingers and unsterilized cold-water dressings, and in amputating the legs and arms of unfortunate soldiers who had sustained gunshot fractures in the disastrous battle of the first 'Bull Run.' We were all blissfully ignorant of pathogenic micrococci and bacilli in those days, but having had Willard Parker as my professor of surgery, and Sands as demonstrator of anatomy, I was not entirely unprepared for the responsibilities of the battlefield.

"It would perhaps have been more profitable if I occupied the time at my disposal upon this memorable occasion in speaking in some detail of the advancement of medicine and surgery since my student days, but most of you are better qualified to discuss this interesting topic than I am, and I am sure you will pardon me if my remarks have been more or less personal and reminiscent in character. I find it hard to realize that the country youth of my name who came to this city as a student of medicine in 1858 is here to-day as the honored guest of leading members of the medical profession in the United States, whose names are as household words wherever students of scientific medicine are assembled.

"I thank you, gentlemen, again and most sincerely for this kind testimonial of your esteem. Your endorsement of my life work is of more value to me than military honors or financial competency. I have at times felt discouraged and disposed to think that I have fallen far short of what might reasonably have been expected in view of my opportunities. But it is reserved for the very few to accomplish great things, and the physician who has won the esteem of those of his profession who are best qualified to judge of his work may well be satisfied, although he realizes that he has but a small share in promoting the advancement of scientific medicine and the interests of our beloved and humane profession."

Dr. Alexander H. Smith, in response to the toast, "The United States Army," said that its work spoke for itself. He had been struck, he said, with the parallelism in the career of Dr. Sternberg and of his own. Both were from New York State, both graduated from the College of Physicians and Surgeons, both settled in New York State to practice and thence both moved to New Jersey; and, finally, at the call to arms, both entered the Army, where their paths diverged very widely. Dr. Sternberg was sent to New Mexico, and for three years was busy holding on his scalp. The Comanches, the Apaches and the Navahoes were to his west, and frontier warfare was being carried on incessantly. It was at Fort Ellsworth, in Kansas, that he met Dr. Sternberg for the first time, and he well remembers his hospitality in the little dugout in which he then lived, and has been proud to claim him as a friend from that time.

He himself had been successful among the Arapahoes and Cheyennes in keeping his own scalp on. Out there, face to face with the savage foe, the American soldier taught the Indian object lessons, and they then learned that an unscalped Indian is only a half-dead one, so they scalped him to be sure. He said that at the present time there was not a hostile Indian within the borders of the United States. They had been compelled to learn their lesson, and had become a responsible people. Dr. Smith suggested that a mental parallel might be drawn which would be of service in modern times.

He had watched the career of General Sternberg, and had shared in his honors; and throughout the Spanish War had felt great pride in his achievements. He had seen that the medical department was not second best, but first best, notwithstanding all the drawbacks; the results were more satisfactory and the criticism less than in any other department of the service, and Dr. Sternberg then and there demonstrated that a medical man might have executive ability outside his own lines.

Colonel Lippincott spoke of himself as being a frontier man, at the present time being stationed at Governor's Island and feeling even more in the backwoods than ever. He said that the Army and his own corps all gravitate toward General Sternberg; their respect and love reach out in his direction. At the present time there is an army of 66,000 men, which before had numbered more than 100,000 men. But so far as the Medical Department was concerned, five corps were ready for active campaign service. The work that Dr. Sternberg had done, finding ten years ago the

miserable old stuff left from the Civil War, in remodeling and reconstructing the corps so thoroughly and fundamentally, was a matter to be proud of, and one is proud to have such a medical man in the Army; one honors the man who made it possible and owes him a debt of gratitude.

Speaking on the subject of the work of the "Army in Cuba," Dr. William Osler, of Baltimore, said that it was a happy expression, "Peace hath her victories no less renowned than war." The Spanish War, he said, afforded an illustration not of prize-fighting, but of a great big giant pommelling a puny citizen affected with general paresis or Parkinson's disease; it was not a fight, he said, it was a walkover. But there was another thing, and a totally different thing; another foe, worthy of the best of America's steel; and no chapter in the history of medicine will be able to stir the blood of the American profession as that which will tell of the battle with that foe, yellow fever. He said it was a noble tale from the earliest history when Matthew Carey, of Philadelphia, in 1793, first took up the work. Throughout the early history of medicine one reads the work of Rush and of Carey and the host of others who fought that foe. It had always been the same story in the Gulf States, the soul-stirring history of the men who had laid down their lives in the struggle with this mighty adversary. Here was the foe that General Sternberg had fought and had vanquished; his name would go down to posterity with the honor of a battle long fought and valorously won. The victory, Dr. Osler said, was accomplished in a way that reflected great credit upon the Army and upon the medical profession. The work of Reed and Carroll was a piece of work well planned and well carried out, a demonstration to the entire world.

That, however, is not all of the story. Tuberculosis, typhoid fever, these are with us still. Never has there been an instant in the history of medicine when with such rapidity an organization had been able to wipe out a scourge. That work had been carried on by Dr. Leonard Wood and Dr. Gorgas.

Dr. Gorgas said that had their work not been as successful as good fortune had made it, General Sternberg would have received the entire blame; the success was his also. When Havana was occupied in 1899, he became health officer in the spring, with no very clear idea of what to do, and at first he had devoted his attention to organization and development of a sanitary department; work was started in on all lines, good as well as bad, bad as well as good. There was little yellow fever in the spring of that year, but

in the fall and winter there was a great deal. In 1900, though the general sanitary condition had immensely improved, the yellow fever was still present and the epidemic was of a severe character. There were over 1,400 cases and 300 deaths, and he felt discouraged at the little progress made. In 1900, Dr. Reed, Chief of the Bureau, first directed work along the lines of the theory of the mosquito infection, and he proved, as history now so well knows, that the mosquito can be infected only during the first three days of the disease, and that there is a period of from twelve to twenty-five days when the bite of the Stegomyia can convey the disease.

In February, 1901, the Sanitary Department was reorganized and turned its attention to study the local conditions and their relation to the spread and development of the mosquito. The rain barrels, the family cisterns, all breeding the Stegomyia, the Chinese gardens from which came Anopheles, all these were studied in much detail and a large force of 150 men was put to work. There were but few cases of yellow fever at the time, and the mosquitoes of the neighborhood were killed by fumigation, pyrethrum powder proving a very efficient mosquitocide. In January of 1901 the city was free from yellow fever; in July the suburbs received a certain amount of reinfection; but on September 28, 1901, the last case of yellow fever occurred. Since that time the island has been practically free, since Havana has been the centre of infection. The success had been due to the study of the mode of propagation, which discovery had been made possible by the enthusiastic co-operation of General Sternberg.

Dr. Janeway then introduced Dr. John A. Wyeth, of New York, the retiring president of the American Medical Association. Dr. Wyeth, in turn, introduced Dr. Frank Billings, of Chicago, the recently elected president.

Dr. Billings said that he did not feel that he could add anything to what had been so well said, but that he desired to speak for the American Medical Association, the representative body of American physicians. It was a great pity, he thought, that this association does not embrace all; the reasons for this are not hard to find, however; it is in part due to the great extent of our country and the relative difficulties in transportation facilities. But these are being steadily overcome, and he hoped the time would come shortly when the entire medical body would be found standing together, with all misunderstandings laid aside; that physicians would not be considering each other as doctors, but rather as men and more particularly as gentlemen who were meeting on common

ground. When that day should come, and as he saw it it was very rapidly approaching, there would be no difficulty with ethics, and the new organization which had proved so successful under the guiding administrations of Dr. Wyeth and Dr. Simmons would go forward, and the higher standards of professional integrity and scientific research would advance through the broadening and uplifting influences of the American Medical Association.

Dr. W. H. Welch, of Baltimore, spoke of that side of the work of Dr. Sternberg which was most familiar to him—namely, his work in bacteriology. Dr. Sternberg, he said, was the pioneer worker in bacteriology in this country; he had been compelled to acquire the technic from reading, and the entire world knew how he had perfected a technic equal to that of the best. Dr. Sternberg, he said, had made many important discoveries; his work on disinfection and disinfectants would stand as a monument alone. As the first worker to isolate the micro-organism of pneumonia, he had gained renown, and his work with yellow fever would stand forever.

He said that it was a common thing, in these busy days, to forget the steps which led up to any important discovery. All that Dr. Sternberg had done in the study of yellow fever was necessary work, and it had to be done in just the way that he did it. The ground had first to be cleared; if it were not so, the discovery had not been possible, and later discoverers themselves would have had to hunt out the large host of micro-organisms which Dr. Sternberg had described and laid aside. Dr. Welch said that his careful work had practically resulted in the view that a bacteriological origin for this disease could not be claimed, and it was on *a priori* grounds that he himself had felt that Sanarelli's bacillus was not the cause of yellow fever. His study of others' discoveries was most careful, and most critical; it was not wasted endeavor. The problem still remains, however, what the cause is, although the method of eradication has been demonstrated in a most complete and authoritative way. Dr. Welch expressed the wish that Dr. Sternberg would come back to his old love and to his test tubes, and he welcomed him to many years of fruitful work in a field that had always claimed him as peculiarly its own and one in which honor and renown had been won at home and abroad.—"Medical News." June 21, 1902.

COSMOPOLITAN HEALTH STUDIES.*

By F. L. Oswald, M. D.,
Author of "Physical Education," "The Remedies of Nature," etc.

XI.—HINDOSTAN.

British India is the sanitarian experiment farm of this planet. Her 300,000,000 inhabitants have evolved some forty different religious sects, every one of them with a more or less fanatically enforced system of hygienic by-laws.

Some of them seek salvation in asceticism, others in sensual excesses; there are Mussulman heretics who emulate the old Grecian worship of joy and vary their indulgences by the caprices of their appetite, while Brahmin rigorists have ponderous folios filled with prohibitive regulations. Pedantry and extravagance have taken root in the same soil; it would hardly be possible to mention a dietetic, architectural, sexual or educational crotchet that has not been tested to the limit of human endurance in some or the other part of the craze-ridden old peninsula.

The cause of morality has not been much promoted by these experiments. Sir Emerson Tennent admits that the rascality of the soft-spoken, prayer-mumbling Cingalese Buddhists is limited only by their cowardice; but from a scientific point of view it is a pity that not a few specimens even of the ancient gymnosophists have survived for modern investigation. Buddha wants his devotees to wander on earth in rags, but those extremists of Brahminism went naked altogether; they subsisted on wild-growing tree-fruits alone, while even the Trappists indulge in a menu of diversified vegetable products. They lived in forests—probably to reattain the primitive virtues of our Darwinian primogenitors. Did their hair, too, disappear? Did their toes become prehensile? There is a tradition that they never quarreled; the higher branches of ethics must have been stimulated by the sublimity of their tree-top diet. If they had kept climbing long enough, their lost vertebræ might have been redeveloped, and the degree of their moral perfection could have been estimated by the joints of their ring-tails.

But the vegetarian of the Alcott school cannot support their tenets by arguments founded upon the longevity of the modern

*Continued from Page 487.

Brahmins. Those servants of the Great Life-giver have been at it too long to live upon water-cresses. Experience has established a *modus vivendi,* and the flesh pot renouncers of the Far East get away with considerable quantities of milk, "unhatched" eggs, and ghee, or clarified butter. An ultra-Alcott plant-worshipper howls even against honey, "because bees carry flower-nectar to their hives, and the result of their industry must be included in the list of animal food."

Philosophers like the Grand Brahmin Samokarya would probably have asked him to reconsider his endorsement of bread, since mules carry corn to the grist-mill.

With a liberal interpretation of the proviso in favor of undeveloped eggs, Brahmin epicures might even accept a lunch of caviare sandwiches; but it is true that their objection to the flesh of their higher fellow-creatures has become an instinctive aversion —"quite as pronounced as our antipathy to the practices of cannibals," as Dr. Geo. E. Ferguson, of Calcutta, assures us.

"That horror quasi-naturalis," he says, "would prevail against all arguments, and has, indeed, a good deal to do with their stubborn adherence to the creed of their fathers. The very idea of a beef-eater setting up for a moral exemplar revolts their sense of fitness as we would be scandalized by the effrontery of a man-devourer in the rôle of a revivalist. Imagine votaries of universal benevolence listening to the pathetic appeals of an Edward Irving, 'so all-redeeming and all-charitable,' and the next day catching him coming home from a pot-hunter's trip with a brace of buck-shot-riddled and disemboweled ploughboys."

And that antipathy is not limited to high-caste Brahmins. In 1894, '95, '96 and again in 1900, it was put to the supreme test of a famine that devoured an aggregate of eight million human beings,—desperately poor and not over-scrupulous rustics and mechanics many of them, but who crouched down and braved the tortures of slow starvation, rather than save their lives at the expense of the sacred bulls—that often were found grazing peacefully at their side—or even of turtles and fish in the wayside pools.

That portent cannot be explained on the theory of exceptional powers of self-control. Under the stimulus of hunger, beings of our species have snatched crusts from crippled beggars, cowards have rushed upon the defenders of well-entrenched granaries. Hindoos have been known to slay adulterous high priests of their own faith, and the great probability is that they would have flung prejudice to the winds and saved themselves and their moaning

children by tearing the holiest bull into jerked beef, if the sight of blood and flesh had not awakened disgust, rather than appetite. Abstinence, continued for hundreds, perhaps for thousands, of generations, has eliminated meat from their list of digestible substances. The stomach of the very famine-martyr would probably have rejected a dose of beef-hash. For all we can know, the supposed dogma-born second nature may simply be the preservation of an aboriginal instinct. Is there any proof that all the tribes of the human race are descendants of hunters, like those who dragged deer to the artificial islands of the Swiss lakes or butchered mammoths in the valley of the Volga? A plurality perhaps were; and Northlanders evolved through the successive stages of apehood, fragivorous manhood, pot-hunting woodscraft, pastoral nomadism and agricultural enterprise, with its gradual return to vegetarianism. Hindoos, perhaps, graduated directly from the second to the fifth class.

The current expense of their persistence is the loss of about one-tenth of the potential food-supplies; but they reap their reward in digestive peace and in a remarkable ease of recovery from external injuries. Surgeon McAllister, of the British Army, saw a young cistewalla, or water-carrier, dragged half a mile through thorns and brambles by a runaway horse, and hurrying to the rescue, was amazed to see the victim rise unassisted and rub his blood-streaming hide with handsful of dust. He would have gone back to work, to save his day's wages, if the doctor had not slipped the three-fold amount in his dripping hand and induced him to get a substitute and submit to an examination. A week's sojourn in a wildcat den could not have brought him nearer to the risk of excoriation. His left leg had been saved by the entanglements of his breech-clout, but from his fingers to the toes of his right foot his skin had been ripped lengthways and crossways; it would have been impossible to count the different scratches, but their total number must have exceeded a hundred, since there were more than thirty on his right arm alone.

"You'll be in a fever to-night, my friend," said the doctor, "and better keep as cool as you can all day to-morrow; I'll see to it that you don't lose your job."

"No, never mind," grinned the native; "I'm older than you think—past twenty now, and get over that all right, if you leave me alone."

Two days after that fellow was at work again, as if nothing had happened, and a careful examination of his integuments proved

that, with the exception of a deep cut on his left knee, all his gashes had healed by first intention.

The ravages of smallpox epidemics are due to the almost total lack of sanitary precautions and the crowded condition of the city-ghettos, but in a given number of patients the death-rate is lower than in Western Europe.

The same holds good of cholera in its ordinary forms. Among the victims of the stricken pilgrim camps seven out of ten recover, almost without medical assistance, or at least without anything civilized nations would describe by that name.

In the crowded cities, however, the plague seems often to gather strength like a well-fed conflagration, and the mortality there doubles; but in Europe an endemic of *that* sort would depopulate whole districts and defy disinfectants as the Chicago fire defied the water-cure.

Beauty is, to some degree, a test of health, and Caucasian observers have repeatedly commented upon the ephemeral charms of Hindoo belles, who are pretty in their early teens, harsh-featured at twenty and hags at thirty. The frequency of good-looking old men would be equally hard to explain, if "harsh," *i. e.*, sharp-cut and deep-furrowed, features were not somehow compatible with virile comeliness. The struggle for existence is fearfully hard upon nine-tenths of the teeming population, and a trace of sorrow and disappointment can be read on all but the youngest faces, but it is also true that the license of precocious marriages has nowhere else been carried to a more extravagant extreme.

The sun of the coast-land tropics hastens the development of marriageable females a good many years, but the native males cannot wait at all. The parents of pretty girls are actually proud if one of them has captured a desirable husband in her unit years —nay, public opinion applauds the disinterestedness of the groom. "Didn't wait till she was big enough to milk a cow or carry a full pail of water; married her in her ninth year, without a dowry; double proof that affection alone decided his choice."

In the presence of his business associates the benedict may avoid the discussion of that topic, but in public he holds his head as high as a Northlander who has rejected a money match to marry a daughter of poverty.

Brides of seven and eight years admit their age unblushingly in the thus far complete absence of legal obstacles. The British Government has more than once been urged to limit the abuse of

that license, but hesitates, under the burden of more important reform projects.

Eleven years being Nature's minimum limit of anything like complete development, the anticipation of that period might seem sure to avenge itself in national degeneration, and the Hindoos are really the most feeble race of our latter-day world, though by no means the most stunted or imbecile. Their average stature is four inches above that of the African Bushman; intellectually they stand head and shoulders above the Veddahs, or ape-like aborigines of Ceylon. Nor does their slender physique prevent them from contesting the prize of acrobatic supremacy; suppleness compensates the lack of muscular qualifications, and neither Arabs nor Japs can begin to emulate the tricks of the Hindoo jugglers.

Have the baneful effects of premature marriage been overrated? Victor Jacquemont, a shrewd observer, seems to incline to an opinion of that sort, and provoked the wrath of European critics by the remark that "pet rats habitually multiply with the assistance of half-grown females, which often attain their full size only after becoming mothers of several dozen young—indistinguishable from the offspring of their veteran relatives."

The fact, if confirmed by the experience of professional pet-fanciers, would certainly be an interesting one, and it is a pity that the keen-eyed traveller should have neglected his opportunities for studying the matrimonial habits of our nearer relatives, the worshipped hanuman apes, for instance, that develop almost as slowly as the chimpanzees, and enjoy the privileges of public pets. Did the natives ever notice half-grown mothers among the vast swarms of the four-handed saints that haunt the neighborhood of their villages?

Brahmanism still maintains its hold on some two hundred million of the natives, but the influence of its superstition is harmlessness itself, as compared with the anti-natural insanities of the Buddhists. All charges brought against the moral competence of the Aryan Hindoos are outweighed by the fact that they had manhood and common sense enough to bundle out that life-blighting delusion neck and crop. The doctrine of world-renunciation was on trial in Hindostan for a number of centuries, and in King Asoka's time (B. C. 250) threatened to become supreme, but its consequences finally compelled the unpossessed part of the population to rise in self-defense, with the result of reducing the aggregate number of the nature-hating howlers from 150,000,000 to a million and a half, not a bad record for a creed which, besides, had

to wage a life-and-death struggle against its own dissenters, and soon after against the rising power of Mohammedanism.

From a sanitary point of view, too, the difference between the two great rival religions of the Eastern Continent is a most important one. It is the habit-deciding difference between fantastic and semi-poetical supernaturalism and deliberate anti-naturalism, between the fairy-dreams of a visionary child and the fever-dreams of an earth-hating fanatic. The Brahman self-torturers merely tried to expiate actual or imaginary sins; their Buddhist rivals mortified their natural instincts to wean their souls from the love of all earthly things whatever; the exceptional aberration of one creed became the ruler of the other.

Brahmanism has other goals besides that of Nirvana, or "final deliverance from the burden of existence," and its doctrines are compatible with a good deal of earth-love and joy-worship. Its valuation of life, indeed, goes to the opposite extreme by prohibiting the extermination even of the vilest of our fellow-creatures, but it seems that modern Hindoos evade that precept on the plan of the Kansas deacon who hired young ruffians to do his swearing and mule-whacking. True children of Brahma must not set traps for a man-eating tiger, oh, no! All they can do, even in the presence of the devourer, is to fall on their knees and adjure him to desist, but they rub their hands at sight of a British fur-hunter and do not scruple to furnish him points on the haunts of his quarry. At Bhagulpoor, on the Lower Ganges, a crowd of natives again and again cheered an experimenter who exploded crocodiles by means of a dynamite cartridge, connected with a bait and a long wire. Nay, Captain Charles Edgerton mentions a Hindoo hotel-keeper who slyly encouraged the visits of a specialist with cockroach poison and other bug-killing outfit, though in the presence of pious brethren no son of Brahma would risk as much as a slap at a troublesome mosquito; pests of that sort must be barred out, or gently expelled. Even gnat smoke—"smudge," as they call it in Texas—is considered a questionable expedient; the tenant of a mosquito-infected bed chamber merely ventures to darken his windows and open the door of an adjoining brighter room to divert his tormentors by an appeal to their love of light.

Serpents are inviolate, being under the special protection of Vishnoo (whence, perhaps, the association of Esculapius, Hygeia, etc., with serpent emblems); but the consequent mortality by snake-bites seems to have been preposterously exaggerated. An intelligent British health official explains the matter as follows:

In case of poisoning, or death under similarly suspicious circumstances, the law required the municipal authorities to subpœna witnesses and forward the victim's stomach, etc., to the next coroner. To avoid all that trouble, cases of that sort are disposed of by the simple plan of a snake-bite diagnosis, and there is not the slightest difficulty about procuring the affidavits of a dozen eye-witnesses who saw the reptile, helped to capture it, and consent to pocket their share of the government reward for the slaying of poisonous serpents. The slaying, under such circumstances, is attributed to a Mussulman neighbor (who also can be induced to add his autograph), or to his dogs, that mangled the serpent in a manner to prevent the witnesses from forwarding the remains as additional proofs.

Hindoos, as a class, prefer country homes to city tenements, and, on the whole, may be said to live much nearer to Nature than their Buddhist neighbors of slum-reeking China or convent-saddled Thibet.

Just about a thousand years ago the advance guard of Mohammedan invasion forced the passes of the border mountains, and in the course of the next six centuries the followers of the Arab Unitarian overpowered the Brahmins, in spite of their 333,000,000 gods, so completely, indeed, that they got control of almost every large city from Benares to Bombay.

And this time the change for the better could not well be denied by unprejudiced outsiders. The very Parsees, who had repeatedly suffered from the inroads of the restless conquerors, were glad that their creed had prevailed against grosser superstitions. Mingled with Afghans and Turkomans, the Arab invaders were a manful race, life-loving, fond of sport and physical exercise, despising sloth and enervating luxuries, but, it must be admitted, not wholly orthodox on the point of their prophet's temperance precepts. The tipples of the North had modified the tenets of the South, and after rejecting *koumiss* and sorgham brandy, the moralists of the Mogul Empire compromised on wine.

Even their champion, Mohammed Baber Khan, the conqueror of the Indus Valley, set a bad example, and between harangues against the execrable delusions of cow-worshippers and ape-adorers, often got as drunk as a Russian trooper.

His autobiography, a most curious medley of reform zeal and cynicism, abounds with confessions to that effect:

"We continued drinking till bed-time prayers; then recommenced and began to feel the effects of excess. One by one we

mounted our horses, and taking torches from the tent, came back to the camp at full gallop, hanging sometimes on one side of the horse and sometimes on the other. I was miserably drunk, I fear, for the next morning, when they told me of that gallopade, I had only a dim recollection of having visited the camp after dark." . . . "Syed Kassim, the next day, got so drunk that two of his servants were obliged to support him in the saddle; Ameer Cherced was so far gone that his attendants were unable to get him on horseback at all."

A sect of Mussulman heretics who had got established on the Upper Ganges, by that time, rejected wine-drinking as too unquestionably opposed to the tenets of the Koran, but sectarians of all sorts met on common ground in the opium-shops that had long been tolerated in Northern Hindostan.

To emphasize their protest against other abominations of Brahmanism, the invaders shot sacred apes by thousands and gloried in their kick the rear sanctuary of the bulls that grazed in the neighborhood of the Brahman temples.

If there had been any holy pigs, the usurpers might have waived their objection to pork, rather than miss a chance for additional insults; as it was, they gorged themselves with beef, defying the horrified natives to protect their pets or invoke the assistance of any desired number of gods.

As late as 1827 the Guicowar, or semi-independent ruler of Baroda, stuffed his prize fighters with a mixture of beef-hash and pepper, and, by way of experiment, tried the same stimulant on a vicious stallion that had attracted his attention by a tendency to develop into a beast of prey. Hash, in gradually increasing doses, had to be mixed with boiled cereals, but the result exceeded the expectations of the royal experimenter. His charger became a Minotaur, a wholly unmanageable terror of the stud farm, chawing up goats and dogs, whenever he could gallop them down, till he had to be shot for an attempt to gratify his carnivorous mania at the expense of his groom.

But the same Guicowar ("cow-herd"—a name, like our Howard —derived from a stock-farming ancestor) also had a pet tiger, completely metamorphosed by a diet of milk, bread and rice, "the most infallible cure of truculent instincts"—a hint for the pathologists of our Indian Territory.

(*To be continued.*)

THE CONFLICT WITH TUBERCULOSIS.*

By NILES R. FINSEN, M. D., of Copenhagen.

When the people of all civilized countries unite in a campaign against tuberculosis, it is not only because the fight against this epidemic is the greatest and most important of all the problems which modern science of medicine must try to work out, but also because we have more and more come to the conviction that the struggle is not hopeless. It cannot any longer be considered fancy, when we express the hope that tuberculosis will become a very rare disease some day or other. However, we shall not be able to attain this object without making earnest use of all the means which the science of medicine has placed at our disposal. Among these means the prophylactical measures deserve doubtless to be placed in the front rank, and we must especially emphasize that there is a particular effective prophylactic, since we cure the patient suffering from tuberculosis by means of physical methods, and in this manner arrest a frequently very effective infectious source. In this way the humane regard to each individual sufferer is united with the welfare of society in a very happy manner.

When I received the honorable invitation to express my opinion about the campaign against tuberculosis, I was very highly pleased to do so, because I think that our times can hardly aim at anything better and greater than the extermination of this dreadful scourge of humanity. However, this is a small domain of tuberculosis, which I have been particularly taken up with, and of which I therefore, as a matter of course, should like to say a few words. This domain is tuberculosis of the skin, particularly lupus vulgaris.

In the light treatment, that is to say, the treatment with exceedingly strong concentrated rays of light, we have a method which is able to cure this disease in most cases. My experiences, which embrace more than six years and more than 800 cases of lupus vulgaris, have taught me that nearly all cases, even the severest, are favorably influenced, because only about two per cent. of our cases have not been influenced.

The treatment can work wonderfully quick, in small and young cases, but, on the other hand, it may be of a very long duration in

*Contributed to the American Congress of Tuberculosis and read June 3rd, 1902.—From advance sheets of Medico-Legal Journal, June number, 1902.

old extensive cases. The definitive cure is, in many cases, made uncertain by the sufferings of the mucous membrane of the nose and mouth, which cannot be treated by light, and from which the disease is able to spread again.

As particular circumstances of the light treatment I must emphasize its painlessness and the good cosmetic results.

As to Denmark, it is not far from all other cases of lupus being exterminated. At any rate, the increase of patients from Denmark to the light institute had already culminated a few years ago. The method is now introduced in many places outside of Denmark: in Berlin, Paris, London, St. Petersburg, Vienna and in many other towns there have been erected university light institutes, or special wards for the treatment of lupus in the large hospitals, the increase of patients being everywhere very great, in most places even greater than they have been able to manage.

What I have told here of the cure of lupus cannot claim the interest, and is not so important to humanity, as if it turned upon phthisis itself, but we must not under-value the importance to each individual person who is suffering from this dreadful disease, and as a line in the campaign against tuberculosis it may be of some interest to the congress.

COPENHAGEN, April 29, 1902.

RESOLUTIONS FOR THE PREVENTION OF TUBERCULOSIS.

The following resolutions were adopted on the last day of the recent Congress.

1. Resolution offered by Dr. E. J. Barrick, of Toronto:

"That it is the duty of every Government, Municipality and individual citizen to adopt organized methods for lessening the spread of a disease which is causing directly or indirectly probably one-fifth of the total deaths in almost every country in the world."

2. Proposed by Dr. W. Oldright, delegate for the Government of Ontario to the Congress:

That, whereas in the lists of deaths from tuberculosis classified according to occupations published in the statistical reports of the United States and Canada female school teachers hold a very prominent position, this Congress would draw attention to the

fact that the average amount of air space in schools is less than half that recommended by sanitarians all over the world and would further urge upon the authorities their bounden duty of providing more accommodation and better ventilation.

3. Resolutions submitted by the Committee on Resolutions:

Whereas tuberculosis is an infectious disease, ordinarily communicated from person to person by means of the dried sputum of a consumptive patient, and

Whereas the spread of tuberculosis could be largely controlled by proper care of such sputum and the enforcement of comparatively simple measures, therefore

Be it resolved by the American Congress of Tuberculosis that the health authorities be urged to disseminate to the widest extent possible, through the public press and otherwise, correct information as to the manner in which this disease is produced and the means to be employed for its prevention.

Resolved, That we believe it to be the duty of the national, State and municipal governments to enact rational methods for the prevention of tuberculosis, and we recommend the establishment of institutions for the care of indigent consumptives.

Resolved, That there should be State and municipal supervision of all public conveyances used for the transportation of passengers; and, in view of the fact that spitting on the floors of public conveyances favors the spread of tuberculosis and is injurious to the public health, it is recommended that transportation companies be induced to pass and enforce rules against this act.

Resolved, That appropriations should be requested from State and municipal governments for the publication and distribution of literature as a means of education in the prevention of the spread of tuberculosis.

Resolved, That all cases of tuberculosis should be reported by the attending physician to the health boards for the purpose of disinfection of houses occupied by consumptives.

4. Resolution proposed by Clark Bell, Esq., and reported from the Committee on Resolutions:

Resolved, That the American Congress of Tuberculosis, now in session, desire to congratulate the people of England, the British nation and His Majesty King Edward VII on the conclusion of the war pending between His Majesty's government and the Boers; and we hail with great pleasure the announcement of the restoration of peace and the cessation of further hostilities as a result that the whole world will hail with great satisfaction.

EDITOR'S TABLE.

SANITARIAN, AUGUST, 1902.

☞All correspondence and exchanges, and all publications for review, should be addressed to the editor, Dr. A. N. Bell, 337 Clinton St., Brooklyn, N. Y.

THE NATIONAL SANITARY BUREAU.

The Editor hereof hails with eminent satisfaction the recent Act of Congress establishing a National Sanitary Bureau, embodying the conditions, as well as principles, for which he has contended on various occasions, for more than forty years.

At the first annual meeting of the American Public Health Association—the first organization on a scientific basis in this country, for the avowed purpose of promoting public health apart from all political considerations—in Cincinnati, May 1, 1873; and at the twenty-fourth annual meeting of the American Medical Association, in St. Louis, one week later, he introduced the following resolution:

"*Resolved*, That in the judgment of this association, the establishment of a National Sanitary Bureau, with relations to the general Government similar to those of the Bureaus of Agriculture and Education, is highly desirable, as a means of promoting sanitary science and the protection of the public health."

This resolution was respectively adopted by both of those associations. At the same session of the American Medical Association, the Section on State Medicine was created, and Dr. Bell was made its first chairman. In his address, as provided, at the meeting of the American Medical Association, the next year, he said, with reference to the resolution adopted the previous meeting: "At the outset of my duties as chairman of the Section, it became evident to me that any special effort for the speedy application of the sense of the association as embodied in the resolution favoring the establishment of a National Sanitary Bureau, before State boards of health become the rule instead of the exception, would be premature, if not, indeed, wholly wasted; or possibly worse, fraught with success encumbered by political conditions more calculated to hinder than to promote sanitary science." But, most unexpectedly, since State Boards of health have become the rule, during recent years, there has been a turn of the table, and most

of the officials of the State boards turned with it. Supported by various "Boards of Trade" and other commercial associations, with leaders who plead grievances against the quarantine practice of the Marine Hospital Service, the American Medical Association and other medical organizations, with ambitious members who depended more upon political influence than sanitary knowledge, and, most astonishing of all, the support of the American Public Health Association: the State board sanitarians have appeared to seek a change of base, a conversion of themselves into a national bureau, with a specially designated chief, to be appointed like themselves, by political preferment subject to revulsions. Against this effort the Editor of THE SANITARIAN has contended with all his might.

Meanwhile, the Marine Hospital Service, by courageous devotion to duty in dealing with epidemic diseases, particularly during the Spanish-American War, and by its prompt discovery of bubonic plague at San Francisco, and efforts to restrict and exterminate it, and constantly, by its watchful service at infected ports abroad, against the debarkation of unclean vessels or persons liable to introduce epidemics into this country: these and kindred services have been the knock-down arguments which have at last effectually surmounted the contention for a national board, bureau or department of health composed of temporary appointments and secured the "Act to increase the efficiency of and change the name of the United States Marine Hospital Service" to Public Health and Marine Hospital Service of the United States, by the Act of Congress under this title printed in full on other pages of this number.

RIGHT OF THE STATE TO PROHIBIT THE IMPORTATION OF GOODS INJURIOUS TO PUBLIC HEALTH.

On the trial of an action brought by George W. Crossman and others against Theodore G. Lurman and others to recover for damages sustained through the refusal of the defendants to accept certain Rio de Janeiro coffees purchased by them, the jury found that the coffee was adulterated, and that the defendants were, therefore, under the provision of the health law prohibiting the sale within this State of adulterations, justified in refusing to accept the goods. The contention of the plaintiffs, on an appeal to the Court of Appeals, that the section of the health law in question is violative of the commerce clause of the Federal Constitution giving Congress the exclusive power to regulate commerce with

foreign countries and between the States has been overruled. The court of last resort finds that, while the States have no right to prohibit the importation of goods and their sale in original packages, yet they can inspect and reject that which would be injurious to the public health and morals. Judge Haight, for the court, after reviewing the many authorities on the subject, says: "The right of a State, under the police powers reserved, to enact laws to prevent fraud and deception in the sale of articles of food, as well as to preserve the public health, is not only conceded by these authorities, but expressly held to exist. The coffee tendered by the plaintiffs, which was rejected, was of a low grade, containing many poor, withered and black beans. It confessedly was colored and the beans coated with a yellowish substance. It is not contended that the coloring matter improved the taste or added to the value of the coffee. It is claimed that the only purpose of the coloring was to hide the character of the poor beans and to make them appear of the same character as the good coffee. The jury has found by its verdict that it was so colored as to conceal the damaged portions or made it to appear better than it really was, or of greater value to the ordinary untrained observer. In other words, that it was adulterated for the purposes of fraud and deception. This, we think, the Legislature had the right to prevent."

FOG AND SMOKE.

At the present juncture in New York, the New York *Medical Journal* invites attention to an editorial in the *British Medical Journal* for June 7 as being particularly apposite: "If any justification were needed for Mr. Ernest Hart's persistent warfare against London fog and smoke, it will be found in the evidence lately given by Mr. Haldane before the Ventilation Committee of the House of Commons Committee. This able observer, speaking with the full authority of his distinguished position, said: 'With regard to the importance of excluding fog, I would point out that the air during a London fog is extremely impure. Chemically the impurities are, of course, derived chiefly from the combustion of fuel coal. The proportion of carbonic acid was found by Dr. Russell to rise as high as 16 volumes per 10,000, in a bad London fog—the carbonic acid by itself.' Is that generally known—the large increase of carbonic dioxide in a fog? 'I think very few people seem to know it.' That is enough to asphxyiate you straight off, 16 in 10,000. It is very unpleasant air. 'What is the limit of carbonic dioxide in 10,000 of air? In air vitiated by respiration

I suppose the ordinary accepted limit is 2 volumes.' So now it turns out that our old enemy, in addition to containing 'irritating particulate impurities, containing, as they do, not only water, but tarry matters and sulphuric acid,' is impregnated with carbonic acid in sufficient quantity not only to make life inconvenient and uncomfortable, but even to endanger its very continuance. We are glad to see that the crusade in which Mr. Hart was so interested has been taken up by the capable hands of Sir William Richmond, and we cordially wish him every success in his useful task." Who will vigorously push the crusade for New York?

MR. BURKE'S BENEFACTION.

The name of John Masterson Burke was comparatively unknown to the great public of New York until a month ago, when the announcement was made that a retired New York merchant by that name had given $4,000,000 for the establishment of the "Winfred Masterson Burke Relief Foundation," in memory of his mother.

Confidence in the wisdom of Mr. Burke's gift was felt when it became known that he had chosen as the trustees of his fund such men as ex-Mayor Abram S. Hewitt, Edward M. Shepard, Frank S. Sturgis and William Hubbard White. The deed of gift specifies that "the benefits of the foundation shall be reserved for intelligent and respectable men and women who, in consequence of sickness, or discharge from hospitals before they have regained sufficient strength to earn their livelihood, or in consequence of other misfortune, may be in need of temporary assistance," and it particularly stipulates that the directors of the foundation shall establish a thorough, careful and kindly system for choosing as beneficiaries men and women who, beyond all reasonable doubt, are within the purposes described in the trust deed; but the founder, appreciating the frequent suffering caused by the tardy action in giving relief, urges that the methods to be used, so far as they are consistent with propriety, shall be as expeditious as possible." The founder considers it of vital importance that the relief shall be extended to self-respecting persons who have been able, as a rule, to maintain themselves; and that the relief shall be temporary, and not permanent. He "does not wish to found an asylum, nor to provide for a body of pensioners," and in giving the trustees power to modify the plan he provides "that the fund shall be used in such way as not to in-

crease, but to prevent, the growth of poverty, the chief purpose of the founder being to help those who give or have given evidence of being willing to help themselves."

MORE PUBLIC BATHS IN NEW YORK.

Mr. Jacob A. Cantor, president of the Borough of Manhattan, has announced that in conjunction with the Dock Department he is making plans for a large bath house at the foot of East Twenty-third street. The Dock Department owns a block of property at this point, and it is proposed to improve the water front with a floating bath which will accommodate at least 18,000 people. The appropriation required for this undertaking will be about $200,000. The average amount paid by the city for its floating baths hitherto has been about $18,000.

Mr. Cantor has definitely located the new upper East Side bath house. The city has purchased, for about $19,000, Nos. 243, 245 and 247 East 109th street. Work will be begun at once. Mr. Cantor has said that all the new bath houses will be ready for the public by the latter part of August.

BEQUESTS FOR CHARITY.

By her will, filed for probate July 11 in the Surrogate's office, the late Mary J. Walker divided a trust fund of $500,000 left to her by her father, the late John Watson, and held in trust by Mr. Ambrose K. Ely, as follows:

To the New York Association for Improving the Condition of the Poor of the City of New York, $100,000; to St. Luke's Hospital, $100,000; to the New York Association for Improving the Condition of the Poor, to be devoted to the purposes of the Fresh-Air Fund, $50,000; to the Society of St. Johnland of St. Johnland, L. I., $50,000; to the Home for Incurables at Fordham, N. Y., $25,000; to the Children's Aid Society of the City of New York, $25,000; to the Orphans' Home and Asylum of the Protestant Episcopal Church of the City of New York, $25,000; to the Colored Home and Hospital of the City of New York, $25,000; to the Home for Old Men and Aged Couples of the City of New York, $25,000; to the New York Institute for the Blind in the City of New York, $25,000; to St. Luke's Hospital for Indigent Christian Females of the City of New York, $25,000; to the Ruptured and Crippled of the City of New York, $15,000, and to the Samaritan Home for the Aged of the City of New York, $10,000.

A FORWARD MOVEMENT IN THE WARFARE AGAINST CONSUMPTION.

The Charity Organization Society has appointed a Committee on the Prevention of Tuberculosis consisting of twelve representative physicians and fifteen others who are especially interested in the social aspect of this disease. The first meeting of this Committee for Organization was held at the office of the Society on Monday afternoon, June 16. The remarkable success of the Society's Tenement House Committee, which for the past three years has led in the movement for tenement house reform, resulting in the creation of the new city department, with Mr. Robert W. de Forest, president of the Charity Organization Society, as its commissioner, appears to justify confidence in the possibility of securing equally valuable results, although of a different kind, in this field. In many respects the methods of work adopted by the new committee will be similar to those which were employed in the case of the Tenement House Committee. Like the former committee, this one will be representative in character. For example, both the Hon. Ernst J. Lederle, Commissioner of Health, and Dr. Hermann M. Biggs, medical officer of the Health Department, the Hon. Homer Folks, Commissioner of Public Charities, and the commissioner of the tenement house department are members of the Committee. Co-operation will be sought not only with charitable agencies of all kinds, but with city departments and State officials. Attention will be devoted to educational propaganda and the support of the public press will be especially welcome.

The services of a competent secretary, who will devote his entire time to the Committee, will be secured, and at the same time, in so far as it will be of advantage, the entire volunteer body of workers and the expert agents and visitors of the Society will contribute to the objects which it is desired to accomplish.

The Committee consists of the following:

Dr. Hermann M. Biggs, Dr. Joseph D. Bryant, Dr. J. H. Huddleston, Dr. Walter B. James, Dr. E. G. Janeway, Dr. S. A. Knopf, Dr. T. Mitchell Prudden, Dr. Andrew H. Smith, Dr. E. L. Trudeau, Dr. Egbert Le Fevre, Dr. Henry Herbert, Prof. W. G. Thompson, the Hon. Ernst J. Lederle, the Hon. Homer Folks, Prof. F. H. Giddings, Mr. Charles F. Cox, Mr. Edward T. Devine, the Hon. Eugene A. Philbin, Mr. Robert Hunter, Mr. Herbert S. Brown, Mrs. James E. Newcomb, Mrs. Frederic S. Lee, Miss A. B. Jennings, Miss Ella Mabel Clark and Miss Lillian D. Wald. Mr. Robert W. de Forest and Mr. Otto T. Bannard are

ex officio members, and additions are likely to be made as the work of the committee develops in various directions.

The first task will be an exhaustive investigation of some of the social aspects of tuberculosis. There are already in progress in many laboratories, investigations of a bacterological character, and in many hospitals and sanatoria there is opportunity for clinical study and investigation into the physical aspects of the disease. Little attempt, however, has been made to establish the relation, for example, between infected living apartments and the victims of the disease; or into the possibility of recovery or improvement resulting from improved diet and improved light and air, when patients are treated in their own homes; nor has there been any systematic effort to ascertain how far infection can be prevented by instruction in the nature of the disease and in the character of the precautions which should be taken to prevent its spread.

The Committee wishes especially to emphasize the fact that this movement is not in any sense one against consumptives, nor one that will be permitted in any way to increase the already great hardships of their lot. In some quarters there is a tendency to exaggerate the danger of casual contact with tuberculous patients. It is believed that there is no occasion for any panic or public apprehension from the existence in a community of consumptive patients, provided a reasonable degree of prudence is exercised.

Aside from the investigation undertaken in the social aspects of tuberculosis, the objects of the Committee have been formulated in part as follows:

I. The promulgation of the doctrine that tuberculosis is a communicable, preventable and curable disease.

II. The dissemination of knowledge concerning the means and methods to be adopted for the prevention of tuberculosis.

III. The advancement of movements to provide special hospital, sanatorium and dispensary facilities for consumptive adults and scrofulous and tuberculous children among the poor.

IV. The initiation and encouragement of measures which tend to prevent the development of scrofulous and other forms of tuberculous diseases.

THE TRAINING OF FOUNDLINGS.

Homer Folks, Commissioner of Charities, addressed the Summer School in Philanthropic Work last week on the care of neglected, destitute and delinquent children. He expressed belief in institutional care for older children and in boarding out younger

children. This question involves 35,000 children in New York institutions alone, 100,000 in institutions in the United States, and 50,000 additional children living with families, or a national total of 150,000 cared for in one way or the other. According to the *Sun* he said that: "If an orphan boy of seven or eight years is brought to the Charities Building and taken to the first floor, he will have a very different career than if he happened to be taken to the fifth floor. If he is received by the Children's Aid Society, on the first floor, he will be sent to the Farm School in Westchester County and forwarded with a dozen or fifteen others to Texas or Iowa. There he will be placed on a farm seven or eight miles from a town, to grow up and develop much as other farmers' boys do and perhaps in the end own a forty-acre farm of his own. If he is received at the office of the New York Orphan Asylum on the fifth floor, he will be sent to their big institution at Seventy-fourth street and Riverside Drive, overlooking the Hudson, where, with 200 others, he will be brought up until he is 14 in an area of three or four blocks, and then indentured to some business in the city. He will always be a city boy, starting far down on the ladder, with possibilities for rising, but with keener competition and without the home life of the other boy. It seems hardly creditable that after an existence of fifty or one hundred years of activity along these lines, much of the child's career should depend on the mere accident of application. There is very far from anything like an organization of children's charities. Physically, there is no question that in the case of very young children the advantages are wholly on the side of their care in families. Foundling hospitals show a mortality nothing less than frightful. Mentally, children under 6 or 7 years of age learn largely by imitation. Their development in a family is much more normal, rapid and all around. Little which ministers to the development of personality can be done in an institution before that age. For the intermediate period from 7 to 16 there is little to choose between the child which lives in a family and attends school and the child which is in an institution. When we deal with children from 14 to 17 there is often a distinct advantage in the more or less exceptional facilities of institutions for training. But I think there is oftentimes danger of offering too much training which cannot be had in the public schools, for that is more or less of a temptation to parents to commit their children. The great object of getting a child out in a home is to get it to grow up with a sense of locality, to model its own life after the standards of a

particular group. The tendency is going to be to place out in families the younger children. I hope it will not be many years before we shall not think of sending them elsewhere."

STIRPICULTURE.

If "the regeneration of the human species" depends upon the success achieved under the will of Count St. Ouen de Pierrecourt, a Frenchman, who bequeathed a fortune to be used in encouraging the marriage of giants to giantesses, then the outlook for the race is dark. Men and women of exceptional elongation are rarely remarkable for exceptional strength, either of mind or body, and oftener than not they are below the average in all the qualities upon which the welfare and progress of humanity depend. It is easy enough to understand why a patriotic Frenchman should cast about for some means of raising his countrymen to standard height, but the Count's scheme is not likely to accomplish much, even in that direction. The Davids of this world have always whipped the Goliaths, and the Count's memory of the fairy stories he must have heard in childhood should have prevented him from trying to increase the number of giants. When they are good they are apt to be silly, and even when they are bad they are usually stupid. Of course, there have been exceptions, but exceptions so rare as to be remarkable, nothing more. Nature's plan seems to be to make the little woman attractive to the big man, and vice versa, with a resulting tendency toward normality and away from extremes. Who is, or was, the Count St. Ouen de Pierrecourt, that he should attempt any interference with natural laws? It is easy to believe that his family dates back to the days of William the Conqueror—but whose doesn't, for that matter?—since it has so little wisdom left for present use.

THE HOUSE FLY AS A GERM CARRIER.

It has been quite conclusively proven during the last decade that the common house fly is a means of transmission for various infectious intestinal diseases. J. Manning ("Jour. Am. Med. Assoc.," May 17, 1902) shows that the fly is also a direct factor in the transmission of the micro-organisms of wound infection. Captive flies were allowed to crawl over dressings from infected wounds, over pus from a case of salpingitis, and over bronchitis sputum. They were then carefully transferred to culture tubes and allowed to come in contact with the various media. During the experimentation 44 culture tubes were subjected to fly infec-

tion; of this number 41 tubes showed colonization at the end of forty-eight hours, 3 tubes remaining apparently sterile. Pure cultures of the following were obtained: Bacillus pyocyaneus, staphylococcus pyogenes aureus, bacillus prodigio-abdominalis, bacillus coli communis, bacillus prodigio-sus, sarcina aurantiaca, sarcina alba, molds and fungi.

WAR ON LONG ISLAND MOSQUITO CULTURE.

According to the New York *Sun*, a preliminary examination was recently made under the direction of Henry Clay Weeks, the engineer, who, associated with Dr. L. O. Howard, Chief of the Division of Entomology of the United States Department of Agriculture, had charge of the work for Mr. Matheson at Lloyd's Neck, Cold Spring Harbor, last summer.

Professor N. S. Shaler, dean of the Lawrence Scientific School of Harvard University, was retained to make a special examination of these salt marshes, and there were associated with Mr. Weeks, as entomologists, Professor Charles B. Davenport, professor of entomology at the University of Chicago, and F. E. Lutz, an instructor in biology at the same institution.

The territory examined is about seventy-five square miles in extent. Professor Davenport and Mr. Lutz walked over the whole district, examining the pools and streams, and even the artificial receptacles of water, which might be the breeding places of mosquitoes.

When their detailed reports had been turned in to Mr. Weeks, the engineer and his assistants went over all the places indicated and examined them with a view to recommending measures to be taken to get rid of the pest.

The seven kinds of relief measures recommended in the report are as follows: First—Many of the useless accumulations of water will be removed entirely, either by filling or draining. Second—The salt marshes will be handled; the problem here is to drain them, or to keep them covered with salt water, or to treat them so that there will be no accumulations of brackish water between high tides. Third—To prevent the breeding of mosquitoes in the streams by straightening the banks and so regulating their courses that there will be no pools of stagnant or slowly moving water. Fourth—To prevent the breeding of mosquitoes in springs, by confining these to definite banks and by draining or filling springy areas. Fifth—The breeding in ponds and bodies of water which cannot be drained or filled, can be largely prevented by making

the edges of the pond regular and freeing them from vegetation, so that there are no accumulations of water so shallow that they are not accessible to fish. The maintenance of certain kinds of fish in ponds so treated would probably entirely prevent breeding, or at least prevent them from breeding to any serious extent. Sixth—To carefully cover barrels and tanks and to tightly cover cisterns with the additional precaution of keeping a few fish in the latter. Lastly, cesspools, drains and catch basins should be kept tightly covered, and petroleum should be used also.

The estimated cost of the proposed undertaking is $141,000.

It is satisfactory to observe that in many parts of the United States determined efforts are to be made to exterminate or, at any rate, to diminish the mosquito pest. That much may be done in this direction has been clearly shown in the case of Havana, where mosquitoes have been practically banished from the city itself and its immediate vicinity. The most radical, albeit, the most expensive measure, is doubtless the most permanent and effective, namely, draining, but where it is impossible to do this, the other methods recommended by the experts in Long Island will serve to mitigate the mosquito plague.

But there are so many immunes among the owners of mosquito culture beds on Long Island, who care less for the healthfulness of their localities than for the willow thickets which choke up their ditches that nothing less than the forceful application of the law against nuisances will effect their abatement. *On the declaration of the health authorities* that obstructed drains, ditches and stagnant pools are dangerous to health, and therefore *nuisances*, owners are required by law to clear them, and if they neglect so to do, in specified time, they may be cleared and cleansed by direction of the health authorities and the cost taxed on the property.

OUR OWN PET POISONS.

Every man's body is a special laboratory, wherein may be manufactured the most virulent poisons known to physiological chemistry. Their production becomes specially active after he is dead, but even while he lives they arise and give him at times most dire distress. A brief description of these virulent alkaloids, which we so often encourage our tissues to produce by unhygienic living is given in "La Science Illustrée" by M. Molinié. Says this writer ("Literary Digest"):

"A false doctrine, long in favor during a great part of the last century, atrributed to plants alone the power of producing the

alkaloids, those nitrogenized poisons which often have fatal effects on the organism even in slight traces. Owing to this idea, in each medico-legal analysis where a poison of this nature was in evidence, the expert invariably concluded that it had been criminally administered. How many innocent persons paid for this rash and incorrect inference with their lives, we do not know.

"Now . . . it has been demonstrated that in the course of the putrefaction of the tissues small quantities of alkaloids are formed. The chemical methods of extracting these substances are very complex, the toxic compounds being literally drowned in great quantities of water, ammonia, skatol, indol, etc. The best way is to utilize their solubility in chloroform and the facility with which they form compounds that are soluble with difficulty in platinum chlorid.

"The cadaveric poisons or ptomaines are basic bodies having sometimes the odor of putrefaction, sometimes the soft perfume of flowers; they are of the nature of venoms and produce on the organism an action as prompt and violent as the poison of the cobra.

"Their origin is entirely in the putrefaction of albuminoid bodies (albumen, white of egg, gelatine, etc.); putrefied cheese furnishes a similar example.

"These facts explain the numerous cases of poisoning with canned foods, cheese, etc.; the formation of these poisons is prevented by the use of antiseptics, which oppose the development of bacteria—the necessary agents of putrefaction.

"Carrying these researches still further, M. Gauthier has studied the formation of ptomaines in the excreta of the living animal. Every one knows the disordered state produced in the living being by the accumulation of matter that should be eliminated. In urine, in the muscles, etc., poisons were isolated, to which the name of leucomains was given. Injected into the veins, these toxic agents have a special action on the nerve centres, producing sleepiness and fatigue—the symptoms observed at the end of a period of high living.

"A tired man is simply poisoned by his leucomains; when these have been eliminated the muscles become supple again. The custom observed by butchers, never to kill a tired animal, is a consequence of the same facts.

"The discovery of the ptomaines and leucomains has thrown new light on the working of the organism; whenever the organs are in pain and work badly, these poisons are forming, and, by

their localization in the tissues, give rise to fatigue, cramps and fever, sad companions of all disease."

THE BILL OF FARE FOR CONSUMPTIVES.

Robin advises (*International Medical Journal*, June, 1902,) a large glass of milk on waking, with a dash of Vichy water. Breakfast at 8 with a piece of fat steak or a cutlet, two soft eggs, a little toast, oatmeal with abundance of cream, but little sugar, and two glasses of milk or a cup of coffee. At 9, cod liver oil and a little milk or a glass of milk with the yolk of an egg. At 10, a large cup of beef tea made from raw meat, after which the patient lies down until noon. Dinner at 12.30, with fish, rice, chicken, cauliflower and a slice of well-buttered bread, one or two glasses of milk and baked apples and cream. At 2, cod liver oil or milk, with the yolk of an egg. At 4, a sandwich of scraped raw beef, and rest or sleep till six, when the supper can consist of beef, fish, mutton or raw beef, with spinach cooked in cream, and blanc mange or vanilla ice cream. At 8, cod liver oil or milk and yolk, and at 9 or 10, a glass of iced or very hot milk or a cup of good beef tea. At night, if wakeful, a glass of milk at 1 or 2. This régime is tolerated by nearly all patients and has given the best results in his extensive experience. Milk is the constant beverage.

TUBERCLE BACILLI IN THE NAIL DIRT OF CHILDREN.

Kornel Preisich and Aladar Schütz (*Berliner Klinische Wochenschrift*, May 17, 1902) report the examination of the nail dirt of sixty-six children with a view to demonstrating the presence of tubercle bacilli therein. This was successfully done in fourteen cases or 21.2 per cent. The children were taken promiscuously without respect to their living in tuberculous surroundings. Of the fourteen cases in which tubercle bacilli were found nine gave an hereditary history of tuberculosis. In all cases in which an hereditary history of bone tuberculosis was present bacilli were found. The method used in demonstrating the presence of the tubercle bacilli was usually that of the stained preparations. At first animal inoculation was tried, but it was found that very frequently the animal quickly died of some acute infection. This work demonstrates the importance of the nail dirt of children in the spread of tuberculosis.

ACTION OF GRAPE JUICE ON THE ORGANISMS.

The grape is composed of various constituents which give it its value in the so-called grape cure. Water, grape sugar, cream of

tartar, tartaric and malic acids, albuminoids, various minerals, as potassium sals, lime, magnesia, the oxides of iron and manganese, a little silicum and alumina, also certain acids-phosphoric, sulphuric and nitric. There are traces of chlorides and a small quantity of soda and phosphates. The seeds contain tannin. Grape juice from its constituents is a veritable mineral water. In taking the grape juice cure the quantity at first taken is small and is gradually increased, the length of the time of treatment being from three to six weeks. Walking and exercise in the open air assist very much in bringing about good results during the time of this cure. The general health is improved, the appetite is increased, and the digestive functions are greatly improved. The patient usually puts on flesh. This cure is especially indicated in affections of the digestive organs, visceral congestions, ascites, jaundice, in cases of hepatic calculi, diarrhœa, habitual constipation, in certain skin troubles, and in neurasthenia; pulmonary tuberculosis is benefited by this treatment, but the intestines must be in good condition. It seems contraindicated only in persons who are too fat or who have a tendency to become so, and during the period of menstruation.—*Gazette Hebdomadaire de Medecine et de Chirurgie,* May 22, 1902.

MINERAL SPRINGS OF SIBERIA.

The entire region of the Trans-Baikal is said to be rich in hot mineral springs, and the aborigines of that region, as well as the Russian settlers, are said to be familiar with their medicinal properties. Hitherto, nothing has been done in the way of scientific investigation and proper classification of the waters. The lands in which the springs are situated fall under the title of Crown lands; hence they are in the jurisdiction of the Ministry of Agriculture.

Recently Prof. Zalessky, a well-known Russian expert, was sent to the Trans-Baikal country to examine, analyze and report upon the most important springs along the line of the Great Siberian Railway. The most popular springs are the Turkinsk Hot Springs, in the Bayuseni district, near the "Holy," or "Rich," Lake Baikal. There are many wonderful legends connected with the cures reported, and they go back to the earliest times. The Iron Springs, near Darassunsk, south of Chita (where the new Manchurian line joins the main road) are well known locally and are patronized. Then there are the Makovieff Springs, between Chita and Nerchinsk. With the opening up of the new railway and

the beginning of work on the Circum-Baikal line next spring, doubtless many invalids who now seek the baths of Obama, in Japan, will avail themselves of the facilities nearer home. These ancient medicinal springs may not equal those of New Zealand, but they are far more important than has been previously estimated, and Prof. Zalessky's report will be looked for with interest.

In Kamchatka there are many mineral springs and geysers, but, with the exception of the Serebriamkoff Springs, none of them have any accommodations for visitors.

R. T. GREENER,
Commercial Agent.

VLADIVOSTOCK, January 20, 1902.

ADVANTAGES OF ARTIFICIAL MINERAL WATERS.

Hanbury Smith long ago observed what Jaworski believes (Ueber rationelle Zusammensetzung und ther. Verwendung der Mineralheilwässer und der Heilbäder für Sommercuren.—"Jour. American Medical Association," June 7, 1902) that better results can be obtained from artificially compounded mineral waters, made according to rule and to conform to individual indications, than from natural mineral springs water. He gives a table of eighteen different kinds and urges physicians to recommend them to their patients. They can be taken at home, but it is better for the physician to prescribe at the same time the change of air and scene which will supplement to best advantage the action of the mineral waters. He is not restricted to the places where the natural springs are found, with their expensive and frequently unsalubrious conditions, but can send his patient to the mountains, the seashore, a farm, or wherever he deems best, with his supply of artificial mineral water. It is possible for the physician in a climate and environment especially suited to certain affections, to make a specialty of them and with his artificial mineral waters to combine all the factors most conducive to a cure. In case one kind of water does not prove effectual, it is far easier to change the water than to travel from one watering-place to another in search of the natural springs.

INSECT REPELLENTS.—It is claimed (*Dental Summary*) that no mosquito can endure the odor of the oils of citronella or of pennyroyal, and that the odor of the oil of mint repels, and the odor of thyme attracts, insects. A box of mignonette and geraniums in blossom in a window are as effectual in barring the entrance of a plague of flies as a wire screen, and far pleasanter

to the eye. Flies have a decided aversion to the oil of bay leaves, and a few drops in a dish placed near the window will prevent their unwelcome visits.

ANTI-TUBERCULOUS MEASURES IN NAPLES.—Sanitary laws now enforced in Naples require that all tuberculous cases in hospitals, orphan asylums, prisons, hotels, schools, convents, dairies, etc., shall be reported; also that cuspidors shall be provided in all public places, with a notice forbidding expectoration elsewhere.

RECORD OF INSALUBRITY.—The Chinese port of Amoy on the canal of Formosa has the unenviable reputation of being the most unhealthful place in the world. Built some ten centuries ago over a cemetery in which, according to a modest calculation, 5,000,000 bodies were interred, its drinking water is derived from wells. Plague and typhus are epidemic, and the mortality reaches frightful proportions.

HYGIENE OF CHURCHES.—The Bishop of Fano in North Italy provides for the association of cleanliness with godliness in his instructions to pastors; an example which might well be emulated in religious circles generally. In all churches, after feast days on which unusual numbers of people have congregated, the floors are to be cleansed with a sublimate solution 1-1000. At least once a week pews and confessional benches must be wiped with a damp cioth, and the grating of confessionals washed with lye. The appurtenances of the altar are likewise to be cleansed with lye or sublimate.

SANITARY HOMES IN GERMANY.—The architects in the service of the government are now required to attend a two weeks' course of lectures on sanitary dwelling houses. The lectures are delivered by the official chief of the architect service, and by a physician, Prof. Kossel. The attendance at a single course is restricted to twenty, and the lectures are given in the Institutes of Technology at Berlin and Hanover. The "Deutsche Med. Wochenschrift" considers this arrangement a very important progress in the line of sanitation.

GERMAN BEER STATISTICS.—Under date of March 5, 1902, Consul-General Guenther, of Frankfort, says:

From the latest volume of German statistics, I have compiled

the following figures with reference to the beer industry. The production of beer in the German Empire during the year ended March 31, 1901, was 1,860,624,800 gallons. The imports of foreign beer (mostly Pilsen beer from Bohemia, probably) were 14,889,600 gallons, and the exports of German beer amounted to 21,172,800 gallons. The estimated consumption of beer per capita of population was 132.2 quarts for the whole of the Empire. The Government revenues derived from the manufacture of beer in Germany amounted to $22,715,976. The tax on beer per capita amounted to 40.9 cents.

FIREPROOF TIMBER AND FIRE PREVENTIVES.

"The ease with which certain woods are liable to catch fire, leading to great catastrophes and loss of life, has led to many attempts to discover some preventive for a danger which continually threatens the human race. The subject of impregnating the pores of hard wood with some substance not subject to combustion has long occupied the attention of our chemists. Experiments have been made with a great many kinds of paint, but the moment the timber of a dwelling begins to warp and shrink, cracks are formed which at once destroy the value of the protecting coat of paint. It would appear that the firm of Hülsberg & Co., Charlottenburg, has at last succeeded in making a liquid which is proof against all changes of atmosphere. After the wood has been coated with this liquid, its weight is increased by 20 per cent. Most hard woods, with the exception of the very hardest American productions, can be easily impregnated with this liquid."

The London *Daily Mail* notes recent experiments with sulphur-dioxide gas. It says that lighted torches thrust into a chamber containing some of this gas were instantly extinguished.

Translated from *Kirchoff's Technische Blatter,* and transmitted to State Department by JNO. F. WINTER, *Consul,* at Annaberg, December, 2, 1901.

MIGHT AS WELL: Katie—Mis' Lummis, ma wants t' know 'f you can let her have a cup o' sugar, two eggs, 'n' a few raisins 'n' some flour. Oh, yes!—'n' a little butter. Mrs. Lummis—Well, I never! Katie Potter, you go home 'n' tell your mother I said if she'd wait till I had time t' make it she could come over 'n' take the cake.—"Philadelphia Bulletin."

MORTALITY AND MORBIDITY REPORTS AND REVIEWS.

NEW YORK.—The State is divided into sanitary districts as follows: Maritime District: Includes New York, Brooklyn, Long Island, Staten Island and Westchester County. Hudson Valley District: All the counties on either side of the Hudson River, except Westchester, to and including Albany and Rensselaer. Adirondack and Northern District: The northern section of the State—the counties of Washington, Warren, Hamilton, Essex, Clinton, Franklin, St. Lawrence, Jefferson and Lewis. Mohawk Valley District: Schenectady, Schoharie, Saratoga, Montgomery, Fulton, Herkimer and Oneida counties. Southern Tier District: The seven counties along the southern border of the State. East Central District: Sullivan, Delaware, Otsego, Madison, Chenango, Onondaga and Cortland counties. West Central District: Cayuga, Tompkins, Seneca, Schuyler, Ontario, Yates, Livingston, Genesee and Wyoming counties. Lake Ontario and Western District: Oswego, Wayne, Monroe, Orleans, Niagara and Erie counties.

Bulletin for May, 1902: Population, 7,467,050; total deaths, 10,772.

Maritime District, 3,948,902; death rate, 18.6; per cent. of deaths under five years, 32.1; per cent. from zymotic diseases, 13.2; from typhoid, 7; scarlet fever, 23; diphtheria and croup, 31; diarrhœal diseases, 33; consumption, 114; acute respiratory diseases, 185.

Hudson Valley, 690,000: Death rate 17.1; per cent. of deaths under five years, 16.5; per cent. from zymotic diseases, 7.2; from typhoid, 16; scarlet fever, 11; diphtheria and croup, 11; diarrhœal diseases, 10; consumption, 135; acute respiratory diseases, 130.

Adirondack and Northern, 394,772: Death rate, 12.0; per cent. of deaths under five years, 14.5; per cent. of zymotic diseases, 7.0; from typhoid 29; scarlet fever, 0; diphtheria and croup, 0; diarrhœal diseases, 5; consumption, 98; acute respiratory diseases, 105.

Mohawk Valley, 419,773: Death rate, 16.5; per cent. of deaths under five years, 20.0; per cent. from zymotic diseases, 7.0; from typhoid, 11; scarlet fever, 9; diphtheria and croup, 25; diarrhœal diseases, 20; consumption, 86; acute respiratory diseases, 140.

Southern Tier, 429,530: Death rate, 14.0; per cent. of deaths under five years, 15.0; per cent. from zymotic diseases, 9.0; from

typhoid, 15; scarlet fever, 10; diphtheria and croup, 15; diarrhœal diseases, 14; consumption, 80; acute respiratory diseases, 94.

East Central, 402,660: Death rate, 14.5; per cent. of deaths under five years, 15.7; per cent. from zymotic diseases, 3.2; from typhoid, 6; scarlet fever, 2; diphtheria and croup, 2; diarrhœal diseases, 10; consumption, 98; acute respiratory diseases, 12.

West Central, 316,000; Death rate, 14.5; per cent. of deaths under five years, 15.0; per cent. from zymotic diseases, 3.5; from typhoid, 7; diphtheria and croup, 5; diarrhœal diseases, 5; consumption, 85; acute respiratory diseases, 100.

Lake Ontario and Western, 75,600: Death rate, 14.5; per cent. of deaths under five years, 23.0; per cent. from zymotic diseases, 7.5; from typhoid, 12; scarlet fever, 9; diphtheria and croup, 15; diarrhœal diseases, 17; consumption, 80; acute respiratory diseases, 135.

Entire State, 7,467,050; deaths, 10,616; Death rate, 17.0; per cent. of deaths under five years, 26.2; per cent. from zymotic diseases, per 1,000 from all causes, 105; from typhoid, 99; scarlet fever, 175; diphtheria and croup, 243; diarrhœal diseases, 259; consumption, 1,135; acute respiratory diseases, 673.

From smallpox there were 52; 35 in New York city; one each in Yonkers, Mt. Vernon and Mamaroneck and two in Smithtown; four in Albany, one in Troy; one each in Canton and Santa Clara; one in Elmira; two in Auburn and two in Rochester. During June smallpox has been brought to several places in Westchester County by telephone linemen; it continues in Albany, 35 cases; at Auburn and Elmira, imported from New Jersey; at Rochester where a considerable number have been distributed by a tramp, and has spread to towns of Fayette and Richmond; at Corning several cases following one diagnosed as varicella; at Buffalo six cases originating from Pennsylvania; at Syracuse one from New York; in towns of Catharine and Hector (Schuyler County) brought by a minstrel troupe. In the Adirondack region scattered localities continue it—in Lewis County, in Clinton County and the town of Dickinson, and to some extent still in one or two lumber camps directly imported from Canada, although local boards of health have been directed to require the employment of no unvaccinated lumber men.

City of New York.—Report of the Registrar of Vital Statistics of the Department of Health for the three months ending June 30 has recently been published. In the three months there were 17,173

deaths in the five boroughs, against 16,615 deaths in the corresponding period last year, an increase of 558 deaths. The increase in the death rate was due to the death of children under five years of age. The report shows an increase in the number of deaths from tuberculosis and a decrease in the number from diphtheria and cancer.

Cases of infectious and contagious diseases reported for the four weeks ending July 12:

Tuberculosis pulmonalis, 996; diphtheria and croup, 1,549; measles, 1,490; scarlet fever, 1,202; smallpox, 190; varicella, 170; typhoid fever, 216; total, 5,812.

Populations, deaths and death rates for week ending July 12:

Manhattan, 1,895,491, 768, 21.14; the Bronx, 244,141, 109, 23.30; Brooklyn, 1,249,650, 548, 22.88; Queens, 172,472, 58, 17.55; Richmond, 70,747, 16; 11.80; city of New York, 3,632,501, 1,499; 21.53. Non-residents and infants a week old not included.

The scaling down of the appropriation asked by the Health Department for better provisions for dealing with contagious diseases in New York, from $1,025,000 to $500,000, was doubtless a great disappointment to President Lederle and to the medical advisers of his department. To carry out the plans in view it is doubtful if even the round amount asked for would have been enough; whether these plans represent an exigent public necessity is, perhaps, a matter of judgment. We shall be better prepared for a definite opinion on this subject when we see what use is made of the half million appropriation to be at the disposal of the board this fall, and how far incomplete and insufficient are the facilities provided.

It is demonstrably true that the agencies now available for dealing with contagious diseases in New York are inadequate and unsatisfactory. The conditions here existing are peculiarly favorable to the spread of infectious diseases. We have an immense population living in tenement and multiple apartment houses, under conditions which render it impossible for the sick or families thus domiciled to be properly isolated. Under these conditions it is inevitable not only that those forced into intimate contact with the sick are exposed to infection, but that they become its carriers and distributors through the agency of public conveyances and in places of public assembly, thus planting new centres of contagion in widely scattered neighborhoods and reaching all classes of the people.

How to deal with this problem to the best advantage demands very serious and intelligent consideration. The solution of the

problem will probably be found in the multiplication of reception hospitals scattered through the city, safe as to location, attractive as to appearance, and at least sufficiently accessible to permit parents and friends to see from a safe distance where their children and those they care for are taken and under what conditions of environment they are established. As these reception hospitals fill up, patients in condition to be moved may be taken to North Brother Island without shock to those interested in them.

But among the poor and ignorant, the dread of everything which admits of classification as a public "pesthouse" is deep-seated and ineradicable. This leads to evasion and concealment, to the spiriting away of patients before the medical inspectors can locate them, and to the postponement of the employment of physicians or the violation by physicians of the law. It all works very badly, not because the system is defective, but because the people who would be most benefited by it are afraid of it, and dread the removal of their children and friends to an exile of unknown terrors, from which none are expected to return. By doing the best he can with the means at his command, Dr. Lederle will break to the minimum resistance to the more thorough work he has in view, and pave the way for needful funds hereafter.

ALABAMA.—Osteopaths Held to Be Physicians.—By a decision of the Supreme Court, rendered June 28, in the case of Eugene Bragg vs. the State of Alabama, the decision of the lower court was affirmed. The decision affects several hundred men throughout the State, and will have the virtual effect of driving them from the State. Osteopaths are thus held to be practitioners of medicine, and must stand the examination as required by the laws of the State of Alabama for all persons entering the practice of medicine. This is another victory for the medical laws of Alabama and for the physicians who have labored for a higher medical education and reasonable qualifications to enter on the practice of medicine.

CALIFORNIA.—San Francisco, 360,000. Report for May: Deaths, 578; 96 under five years; annual death rate, 18.12. Deaths from specific febrile diseases, 35; bubonic plague, 3; diphtheria, 14; measles, 6; typhoid fever, 9; consumption, 69; other diseases of the respiratory system, 77; pneumonia, 33; bronchopneumonia, 21; cancer, 33.

LOS ANGELES, 120,000. Report for June: Deaths, 185; 48 under five years; annual death rate, 15.41. Deaths from tubercu-

losis, 28; natives of Los Angeles, 2; natives of the Pacific Coast, outside of Los Angeles, 6; from other parts, 26; of the 28 deaths from tuberculosis 4 had lived here less than three months, 2 between three and six months, 2 between six and twelve months, 4 between one and five years, 7 between five and ten years, 1 over ten years, 1 life, unknown 1.

COLORADO.—The mortality report of the State Board of Health for May shows 722 deaths, or an annual death rate of 14.52 per 1,000. Diphtheria caused 22 deaths, scarlet fever 13 and typhoid fever 7.

To Aid Consumptives.—A modern, splendidly equipped hospital for tubercular patients is to be given to the State of Colorado by Laurence C. Phipps, in memory of his mother, Mrs. Agnes Phipps. The building of the institution will be begun in the early fall. The property consists of 160 acres, 40 to be used for the present buildings and the remaining 120 will be held by Mr. Phipps at the disposal of the sanatorium, whenever it is needed. The first plans contemplate an outlay of $250,000. The medical department will be made up of one or more resident physicians and prominent ones of other cities. The Denver staff will be Drs. Thomas J. Gallagher, George W. Holden, William H. Bergtold and Carroll E. Edson. The institution is to be called the Agnes Memorial Sanatorium, and will be arranged on modern sanitary ideas, with one large administration building and groups of cottages. One of its features will be an elaborately equipped laboratory for the conducting of investigations and study of the disease. The institution will not be a purely charitable one, for patients will be expected to pay when possible, and preference will be given to those from Western Pennsylvania.

CONNECTICUT.—By mortality reports received there were 1,061 deaths during the month of June. This was 39 less than in May, and 39 more than in June of last year, and 31 more than the average number of deaths in June for the five years preceding.

The death rate was 14.6 for the large towns, for the small towns 12.1, and for the whole State 14.0. The deaths reported from infectious diseases were 271, being 25.4 per cent. of the total mortality. Deaths from consumption, 13, in seven towns; from smallpox, 1.

DISTRICT OF COLUMBIA, 278,880 (86,467 colored).—Deaths during the week ended June 28, 132; death rate, 23.4; previous

week, 154; death rate, 27.3. Of the decedents last week 73 were white, death rate 18.7, and 59 colored, death rate, 34.2. There were 4 deaths from typhoid fever and 69 cases under treatment at the end of the week.

ILLINOIS.—Chicago—Report for the week ending July 5, 453 deaths from all causes; death rate, 12.97 per 1,000 of the 1,820,000 estimated population. For the previous week the rate was 11.31, and for the corresponding week of 1901 it was 13.59 per 1,000. The excess of fifty-six deaths over the previous week's total was contributed by Bright's disease (ten more), heart diseases (eleven more), pneumonia (thirteen more) and violence (twenty-one more). The increase of deaths from disease was due largely to the low temperature and frequent rainfalls of the latter half of June; that from violence to a number of belated coroners' certificates.

Only ninety-two cases of the contagious diseases, including two of smallpox, were reported during the week, and, except for the usual seasonal increase of hot weather illness, especially among the young, the public health prospects are favorable.

Statement of mortality for the week ended July 5, 1902, compared with the previous week and with the corresponding week of 1901:

	July 5 1902	June 28 1902	July 6 1901
Total deaths, all causes.....	453	397	459
Death rate per annum.....	12.97	11.31	13.59

After the record was made up the department received notice of the death of John Batests of Randolph and May streets, aged 102 years.

INDIANA.—Deaths and Disease During Month of June.—The reports to the State Board of Health show there were 2,164 deaths in the entire State in June. This is an annual rate of 10.4 per 100,000. The city deaths numbered 994, a rate of 14.1, and the country deaths numbered 1,170, a rate of 8.3. The health of the country was, therefore, very decidedly better than that of the cities in June. Over one-fourth of all the deaths were of persons who were sixty-five years and over, the actual percentage being 25.8. It is very remarkable that the ten deaths from diphtheria all occurred in cities, not one occurring in the country. On the other hand, all the deaths occurring from puerperal fever,

two in number, occurred in the country, none in the cities. The typhoid death rate was less in the country than in the cities and this was also true of cancer and of violence. Two smallpox deaths occurred, one in Boone and the other in Henry County. One of these deaths was in Mechanicsburg and the other in Knightstown. The greatest number of deaths from any one disease was 253, caused by pulmonary tuberculosis. The people of Indiana must not very much longer put off fighting consumption.

Sickness.—Smallpox was the most prevalent disease during the month; 573 cases were reported from 52 counties. The cases numbered 692 in May, 60 counties reporting the disease present. There is, therefore, an improvement to record for June, as compared with the preceding month. The disease appeared in virulent form in Knightstown about June 20. On June 30 there were 35 cases in this town, 12 of them being confluent. The first case that appeared in this town was of confluent form, and died.

The following is the order of prevalence of diseases during the month of June: Rheumatism, diarrhœa, tonsillitis, consumption, intermittent fever, bronchitis, cholera morbus, measles, cholera infantum, dysentery, typhoid fever, inflammation of bowels, pneumonia, scarlet fever, pleuritis, influenza, whooping cough, erysipelas, diphtheria and croup, puerperal fever, cerebro-spinal meningitis. Diarrhœa increased in area of prevalence, also cholera morbus, typhoid fever, inflammation of bowels, dysentery, cholera infantum. The diseases which decreased in area of prevalence were: Rheumatism, tonsillitis, bronchitis, measles, pneumonia, scarlet fever, pleuritis, influenza, erysipelas, puerperal fever and cerebro-spinal meningitis.

LOUISIANA (New Orleans), 305,000 (81,500 colored).—*Second Biennial Report*, 1900-1901. "The most important work of the Sanitary Department for the two years has been the sanitary care of infectious and contagious diseases, two of which, scarlatina and smallpox, prevailed extensively in the city, as a result of repeated importations from the surrounding country.

"Variola, which has been attended with a small mortality in 1899 (6 deaths out of 235 cases, from February 2 to August 26), assumed in 1900 a more virulent type (448 deaths out of 1,468 cases). The higher death rate of this and the succeeding year (1901), 291 cases with 52 deaths, could not be attributed to any known cause, further than that the morbid genus of the epidemic had changed.

"Scarlatina, for the two years, respectively, 266 cases, with 19 deaths; 701 cases, with 61 deaths. Diphtheria, respectively, 129 cases, with 33 deaths; 218 cases, with 41 deaths.

"Mortality from all causes in 1900 (estimated population—white, 210,000; colored, 90,000—300,000), 7,424; white, 4,318; colored, 3,106. Death rates, white, 20.56; colored, 34.44—24.74.

"1901, estimated population (white, 223,500; colored, 81,500), 305,000. Deaths, white, 4,037; colored 2,441—6,478. Death rates, white, 18.06; colored, 29.70—21.24."

Report for June, 1902: Deaths, 616, 246 colored; 133 under five years. Death rates: White, 19.86; colored, 36.22—24.23. Deaths from tuberculosis, 73, 43 colored; pneumonia, 10, 5 colored; typhoid fever, 23, 9 colored; Bright's disease, 39, 17 colored; diarrhœa and enteritis, under two years, 67, 17 colored.

Quarantine Rules.—Acting in harmony with the Alabama Board of Health, the State Board of Health of Louisiana has amended the regulations governing fruit vessels, so that after July 1 passengers from Bluefields, Ceiba, Cortez, Barrios, Livingstone and Belize will be detained at the Mississippi River quarantine station a sufficient length of time to make five days from the hour of departure from the last port touched at.

Incidental Powers of State Board of Health.—The Supreme Court of Louisiana says, in the case of the Louisiana State Board of Health vs. Standard Oil Company, that the rule of construction applicable to the charters of municipal corporations is equally applicable to the charter of the State Board of Health. As to municipal corporations, it is well understood that they may exercise not only powers expressly granted, but those necessarily or fairly implied in or incident to the powers expressly granted, and also those which are essential to the declared objects and purposes of the corporation. The same rule of construction is applied in cases of private corporations. The functions for the discharge of which the State Board of Health is established are of vital consequence to the whole people of the State, affecting them in the matter of health and safety; and there is no reason why a narrower rule of construction should be applied to the powers of that board than to those of corporations of comparatively minor importance. When the General Assembly, for example, vests in the board the authority, and imposes upon it the obligation to see to the inspection, throughout the State, of an article of commerce, which, uninspected, may be dangerous to human life, it is a reasonable inference that it intends that the means for the accomplishment of the

work shall be provided in the manner which, it may safely be said, is universally recognized and adopted, i. e., by the imposition of a charge upon the dealer in the article inspected sufficient to defray the cost of inspection.

MAINE.—The State Board of Health does not advise local boards to close up houses on account of the presence of typhoid fever, nor to placard them. It is not taken by inhaling it into the lungs, although if one remains in a room where the dried discharges from the bowels have been dusted into the air, as might occur when the bed of the patient is soiled and afterward dries, it might be possible to take the disease by swallowing the germs which have lodged in the mouth in the process of breathing. It usually comes, however, by drinking water which has been infected by the discharges, or by taking food which has in some way been infected. In one household under observation the disease was apparently carried upon the fingers of the mother from her first son, who was sick, to the food of other members of the family. She was notoriously uncleanly.

MICHIGAN.—The secretary of the State Board reports for the month of June, 1902, compared with the preceding month, diarrhœa, typhoid fever, cholera morbus, dysentery and cholera infantum were more prevalent; and influenza, pneumonia, smallpox and meningitis were less prevalent. Compared with the average for June in the ten years, 1892-1901, measles, pleuritis, typhoid fever and smallpox were more than usually prevalent, and consumption, intermittent fever, erysipelas, remittent fever, cholera morbus, dysentery, cholera infantum and meningitis were less than usually prevalent.

Of the most dangerous communicable diseases, including reports by regular observers and others, meningitis was reported present in Michigan during the month of June, 1902, at 10 places; whooping cough at 43 places; diphtheria at 52 places; typhoid fever at 73 places; measles at 113 places; scarlet fever at 119 places; smallpox at 121 places, and consumption at 235 places. Reports from all sources show meningitis reported at 6 places less; whooping cough at 7 places more; diphtheria at 4 places less; typhoid fever at 7 places more; measles at 17 places less; scarlet fever at 23 places less; smallpox at 33 places less, and consumption at 4 places less, than in the preceding month.

Deaths returned to the Department of State for the month of

June, 2,234, 452 less than for May, and 100 less than for June, 1901. The death rate was 11.1 per 1,000 population. There were 395 deaths of infants under 1 year of age, 147 1 to 4 years, inclusive, and 651 deaths of persons aged 65 years and over. Important causes of death were as follows: Tuberculosis of lungs, 176; other forms of tuberculosis, 29; typhoid fever, 27; diphtheria and croup, 29; scarlet fever, 16; measles, 32; whooping cough, 34; pneumonia, 160; diarrhœa and enteritis, under 2 years of age, 55; meningitis, 33; influenza, 11; smallpox, 8; cancer, 117; accidents and violence, 176.

MINNESOTA.—Minneapolis, 240,000. Registry of deaths for May, 1902: Deaths, 211, fifty under five years; death rate, 9.92; deaths from typhoid fever, 5; tubercle of the lungs, 24; pneumonia, 34; broncho-pneumonia, 4; organic diseases of the heart, 14; cancer, 6.

St. Paul, 170,000. Report for May, 1902: Deaths, 162, 53 under five years; death rate, 11.42; deaths from diphtheria and croup, 7; tuberculosis of the lungs, 15; bronchitis, 5; pneumonia, 32; heart disease, 10; Bright's disease, 11; cancer, 3.

Winona, 20,000. Report for the municipal year ended March 31, 1902: Births, 480; deaths, 248, 76 under five years.

Ages of decedents: One year and under, 61; 1 to 5 years, 15; 5 to 10 years, 4; 10 to 20 years, 15; 20 to 40 years, 38; 40 to 60 years, 34; 60 to 80 years, 56; over 80 years, 19.

Number of deaths to 1,000 inhabitants, 12.4. This is a low death rate. The average annual rate for American cities has been given at about 18 for 1,000 inhabitants.

Causes of death and the number from each cause: Prevailing Causes of Death—Pneumonia and broncho-pneumonia, 18; meningitis (cerebral), 8; peritonitis (acute and tubercular), 10; apoplexy and embolism, 14; Bright's disease (acute and chronic), 10; cancer (all forms), 15; heart disease (all forms), 22; tuberculosis (pulmonary and intestinal), 24; still birth, 11.

MISSOURI.—St. Louis, 598,000 (38,000 colored). Report for May, 1902. The annual death rate per 1,000 during the month was 18.13, this being based on a population of 598,000, computed on census figures of 1900 (575,200) at the rate of four per cent. annual increase. During the month there were 87 less deaths than the previous month; 51 certificates were issued for deaths occurring outside of the city limits; these are not included in the

monthly statement. Percentage of deaths in eleemosynary and other institutions of a public character to total mortality, 25.11. Percentage of deaths in city institutions to total mortality, 13.16; white population, 560,000; mortality rate per thousand, 17.00; colored population, 38,000; mortality rate per thousand, 34.72.

Deaths from zymotic diseases, 101; scarlatina, 16; diphtheria, 13; whooping cough, 14; typhoid fever, 11; consumption, 84; bronchitis, 30; pneumonia, 109; other diseases of the respiratory organs, 25; Bright's disease and nephritis, 41; other diseases of the urinary organs, 27; cancer, 23.

NEW JERSEY.—Hudson County (Jersey City and environs), 409,810. Report for April, 1902: Deaths, 643, 183 under five years; death rate, 18.9; deaths from smallpox, 24; diphtheria and croup, 15; consumption, 72; bronchitis, 14; pneumonia, 83.

Newark, 255,000. Report for the week ending July 6, 1902: Deaths, 104; death rate, 21.2; deaths from consumption, 9; smallpox, 5; diphtheria, 3; measles, 2; scarlet fever, 2. Contagious and infectious diseases reported, 38.

NORTH CAROLINA.—Bulletin for May, 1902, reports proceedings of annual meeting of the board, at Wrightsville, June 11. President Thomas, on taking the chair, made a short but excellent address, devoting himself chiefly to the best method of abating one of the greatest menaces to the public health—the incompetent physician. In order to eliminate the personal element, he suggested that all information necessary to conviction of illegal practitioners be furnished by those coming into its possession, to the secretary of the board, who would then, in his official capacity, bring the matter to the attention of the Solicitor of the district in which the violator of the law resided. Subsequently this request was made, and we trust it will bring forth fruit. There are comparatively few illegal practitioners in the State, but one is too many.

A general inspection of all the public water supplies of the State by the engineer of the board was ordered.

The secretary of the committee appointed to revise the Instructions for Quarantine and Disinfection submitted their report, which was approved and adopted. Tuberculosis was discussed, and suggestions made with a view to a more active fight against that disease.

Smallpox has continued to prevail in the State. Owing to the fact that no smallpox was reported from Wilson County from May

1, 1901, to January 1, 1902, the Superintendent of Health considering the eruptive disease widely prevalent in the county to be chicken-pox, it is impossible to give an accurate statement for the whole State. Omitting Wilson County for the present, and confining ourselves to the other ninety-six counties, the totals are as follows: Number of counties infected (including Wilson), 55; number of cases, white 616, colored 1,196, total 1,812; number of deaths, white 21 or 3.41 per cent., colored 27 or 2.28 per cent., total 48 or 2.59 per cent. The figures for the preceding year are: Cases, white 530, colored 1,415, total 1,945; deaths, white 15 or 2.83 per cent., colored 23 or 1.63 per cent., total 36 or 1.95 per cent. From this it appears that the death rate during the past year has been slightly higher than the year before, but not so high as the year preceding that, when it was 4.78 for the white, 1.44 for the colored.

The chief difficulty in the management of the disease has been the same as heretofore—mistaken diagnosis as chicken-pox.

Summary of mortality reports of 28 towns, with an aggregate population of 153,900, 62,740 colored, for May: Aggregate deaths, 311, 164 colored. Death rates: White, 19.3, colored 31.4: 24.2. Deaths from chief causes: Consumption, 15 white, 19 colored; pneumonia, 7 white, 20 colored; heart diseases, 8 white, 14 colored; diarrhœal diseases, 26 white, 23 colored. All other diseases, 65 white, 70 colored. Deaths under five years of age, 55 white, 68 colored; stillborn, 8 white, 12 colored.

OHIO.—State Board of Health Report for the year ending October 31, 1900, pp. 600. It comprehends in detail the work of the Board for the period of which proceedings have been published in the quarterly bulletin and the gist given in our pages *au courant.* During the calendar year 1900 there were 3,229 cases of smallpox reported, with 39 deaths. Vaccination was "far from general," and there remained at the end of the year a large number of persons susceptible to smallpox, even in communities where the disease had been more or less prevalent. Water supplies and sewerage were prominent objects of attention throughout the year, and plans for water supplies approved by the board, according to requirements of the law, for eighteen cities and towns. For sewerage or sewage purification works, sixteen plans were approved. The purification of public water supplies is also considered a subject of pressing importance to some of the large cities in the State. These subjects, with numerous special reports on the water

supplies, with analyses and bacteriological examinations, occupy about half of the volume.

Summary of mortality, exclusive of premature and still births (2,255), of the cities, villages and townships represented, with an aggregate population of 2,760,659, 34,296; death rate, 12.66; deaths under five years of age, 7,937, 20.29 per cent. of mortality from all causes; deaths from zymotic diseases, 6,127; from typhoid fever, 1,291; from consumption, 3,241, 9.5 per cent. of total mortality; cancer, 1,139, 3.3 per cent. of total mortality.

Fourth Report Upon the Examination of the Sources of Public Water Supplies, appended (also issued in separate volume), is in continuation of the investigations begun in 1897. It completes the investigation for all the interior streams; reports progress on the two Miami rivers, which drain the most elevated portion of the State, composing a drainage of 6,956 square miles, of which 5,601 are in Ohio, both discharging their waters into the Ohio near Cincinnati. The report is amply explained by maps, diagrams and records of chemical and bacteriological examination. Altogether the most important work ever undertaken by the board.

Cleveland, 400,000.—Report for May, 1902: Total deaths, 520, 154 under five years of age. Annual death rate, 15.6. From diseases of the respiratory organs: Consumption, 42; pneumonia, 68; broncho-pneumonia, 20; bronchitis, 12; typhoid fever, 16; smallpox, 12; diphtheria and croup, 15; cancer, 19.

PENNSYLVANIA.—Philadelphia, 1,293,697. Report for week ending July 5, 1902: Deaths, 402, 172 under five years; death rate, (?); deaths from consumption, 41; pneumonia, 30; diseases of the heart, 23; inflammation of kidneys, 19; typhoid fever, 5; smallpox, 2; cancer, 10.

Report for the year 1901: Total deaths (exclusive of still and premature births, 1,810), 24,137, 6,840 under five years of age. Death rate, 18.26. Deaths from prevailing causes: Apoplexy, 821; Bright's disease, 401; cancer, 692; casualties, 501; cholera infantum, 507; consumption, 2,946; convulsions, 655; croup (membranous), 118; debility, 324; diphtheria, 525; diseases of the heart, 1,539; scarlet fever, 220; typhoid fever, 444; inanition, 802; inflammation of the brain, 735; inflammation of the bronchi, 380; inflammation of the kidneys, 1,038; inflammation of the lungs, 2,577; inflammation of the peritoneum, 301; inflammation of stomach and bowels, 1,055; influenza, 196; marasmus, 789; old age,

572; paralysis, 386; smallpox, 156; sunstroke, 404; uremia, 575; whooping cough, 261.

Pittsburg, 346,000.—Report for week ending July 5, 1902: Deaths, 162, 60 under five years; death rate, 24.04. Deaths from typhoid fever, 5; measles, 11; smallpox, 2; consumption, 12; pneumonia, 10; cancer, 2.

TENNESSEE.—Memphis, 110.000 (49,000 colored). Deaths for the month: White, 71; colored, 87; total, 158, 19 under five years. Annual rate per 1,000 during this month, including non-residents: White, 13.95; colored, 21.30; total, 17.23. Annual rate per 1,000 during this month, residents only: White, 10.81; colored, 18.61; total, 14.28.

Deaths from fevers, 8; consumption, 22, 13 colored; smallpox, 2; infantile diarrhœa and enteritis, 10.

UTAH.—Salt Lake City, 70,000. Report for May, 1902: Deaths, 69, 25 under five years. Annual death rate, 7.28. Deaths from consumption, 6; pneumonia, 10; scarlet fever, 6. Contagious and infectious diseases reported: Diphtheria, 15; scarlet fever, 77; measles, 24; typhoid fever, 5; smallpox, 11; varioloid, 1; chicken-pox, 1; whooping cough, 4.

VERMONT.—Bulletin for June, 1902 (quarterly), reports suggestions and instructions on and of Laboratory Work; Malarial Fever in Vermont; Bacterial Changes in Water; Rapid Method of Detecting Bacillus Coli Com. in Water; Laboratory Work on Private Water Supplies; Vaccination and Common Sense.

Cases of contagious diseases reported, January 1 to May 20: Smallpox, 124, 2 deaths; measles, 1,322, 3 deaths; scarlatina, 380, 13 deaths; typhoid fever, 106, 12 deaths; diphtheria, 82, 8 deaths; whooping cough, 331, 3 deaths; meningitis, 5; erysipelas 7, 1 death.

WASHINGTON.—Seattle, 115,000. Report for May, 1902: Deaths, 99, 16 under five years; death rate, 10.32. Deaths from consumption, 10; pneumonia, 13; typhoid fever, measles, each, 2; cancer, 7.

WISCONSIN.—Milwaukee, 300,000. Report for May, 1902: Deaths, 309, 107 under five years; death rate, 12.15. Deaths from measles, 10; diphtheria, 5; tubercular diseases, 26; cancer, 22.

REPUBLIC OF CUBA.—Havana, 275,000—73,000 colored. Dr. Carlos J. Finlay has succeeded Major W. C. Gorgas as chief sanitary officer, and submits report on vital statistics of the city of Havana and the town of Guanabacoa for May, 1902, which had been prepared from the data collected until May 19, while Major W. C. Gorgas was in charge as chief sanitary officer under the military government, and thereafter, till the end of the month, with Dr. C. L. Furbush as acting sanitary officer since the inauguration of the Republic.

The total mortality for May was 588, equivalent to the annual type of 25.65 per thousand, the population being reckoned as 275,000. An increase of 89 deaths over the previous month, proceeding mostly from diseases of children.

In view of the increased mortality from intestinal diseases both among children and adults, an investigation was commenced concerning the water supply, the quality of the milk, and general sanitary conditions of infected localities. Dr. C. L. Furbush also decided to consider a new factor recognizing that intestinal infections may be developed from the use of contaminated vegetables which are eaten raw, such as water-cresses, lettuce, radishes and others, and he ordered a minute inspection of the truck gardens cultivated by the Chinese in the outskirts of the city. Ample evidence was thereby brought to light regarding the disgusting methods employed by those men. They use liquid fertilizers, essentially consisting of the contents of privies collected in holes dug in the ground and into which dead animals in every stage of decomposition are introduced. This liquid is not used merely to fertilize the soil, but also to sprinkle the leaves and stem of the plants, while the roots are maintained soaking in a pool of the same liquid. Additional evils result from the multitude of mosquitoes, anopheles and stegomyia, which are bred in these pools, and from the fact that on rainy days the offensive liquid is carried into adjoining creeks, whereby the water supply of the city may be contaminated. Severe measures have been dictated to oblige those truck gardeners to discontinue their disgusting methods, but, so far, with only temporary success, so that it has now become necessary to warn the public against the use of raw vegetables, at the present time.

On the other hand, the mortality from tuberculosis has decreased by 15 per cent. Not a single death of yellow fever nor case of that disease has been recorded; though a patient coming from Vera Cruz, Mexico, and attacked twelve hours after arrival, had been treated at Las Animas Hospital, at the beginning of the

month. The same may be said of smallpox, inasmuch as the only case on record was a passenger on the Alfonso XII, from Spain, who arrived already very sick, and died at Las Animas a few days later. Such cases are not considered as belonging to the population of Havana.

CITY OF MEXICO, 368,777.—Bulletin for March, 1902: Total deaths, 1,839, 646 under five years of age. Annual death rate, 49.88. Deaths from prevailing causes: Typhus fever, 221; tuberculosis, 176; pneumonia, 186; bronchitis, 108; broncho-pneumonia, 88; diarrhœa and enteritis, 329; diseases of the heart, 60; cirrhosis of the liver, 54; cerebral hemorrhage, 52. Other causes, from 2 to 45, 565. Premature and stillborn, 102.

CHOLERA IN THE PHILIPPINES.

MANILA.—Cholera appears to be increasingly prevalent. Latest press report at the time of this writing, July 17: Cholera is still spreading in the provinces. The present totals are 14,567 cases and 10,937 deaths. Manila averages forty cases daily.

To June 15, according to latest official reports, there had been registered 1,530 cases, with 1,236 deaths in Manila and 7,369 cases with 5,440 deaths in the provinces. Ninety American soldiers had died, all within the month preceding the date of the report. Nearly every case among the troops can be traced to neglect of the army rules regarding the drinking water.

PEKIN, July 16.—Several deaths from cholera have occurred in the Forbidden City. The Dowager Empress is alarmed, and has kept the court physicians busy preparing remedies.

The disease is increasing, especially among the Chinese soldiers here and at Pao-Ting-Fu. Reports from various parts of the empire show that the epidemic is steadily spreading inland from the coast.

UROTROPIN AS A URINARY DISINFECTANT.—DR. ARNOLD WARNIER (*Centralblatt f. d., Krankheiten der Harn- und Sexual-Organe*, B., xii., No. 11, p. 593, *Journal of the American Medical Association*, January 25, 1902) undertook an experimental investigation for the purpose of determining the bacteriological powers of a number of drugs that have been recommended as urinary antiseptics. He administered the drugs in question to healthy

individuals, and the urine passed on the succeeding night was collected in sterile vessels. This urine was then inoculated with bouillon cultures of the respective micro-organisms and put aside in the thermostat for observation and comparison with control uninoculated specimens. As a result of this study it was found that boric acid, guaiacol and creosote, when administered internally, even in large doses, exert no influence upon the development of bacteria in the urine. Benzoic acid in small doses (9 grains daily) likewise exhibits no such action, but when given in larger doses (from 45 to 90 grains in the day) the growth of streptococcus pyogenes is inhibited, while other bacteria are on the other hand not affected. The growth of streptococcus is not inhibited by salol, while that of staphylococcus albus and proteus is retarded distinctly, and that of bacterium coli and bacillus typhi and staphylococcus aureus is not materially affected. After the internal administration of urotropin this substance can always be found in the urine within a short time. Likewise formaldehyde can always be found in acid urine and the reaction is the more distinct the more pronounced the acidity of the urine. The growth of bacteria is almost entirely prevented, although bacterium coli exhibits sluggish growth even in urine containing formaldehyde. At first this failure of growth depends only upon inhibition, while the bacteria retain their viability. After prolonged action of the formaldehyde, however, actual destruction of the bacteria takes place. Here again the bacterium coli is the most resistant of the organisms. Tannopin and tannoform exhibit no influence upon the development of bacteria in the urine.

A COMPANY WHERE REVACCINATION IS A NECESSITY.—The directors' report of the London Life Association conveys the astonishing information that the "business of the year was a little checked, as in the previous year, by the requirement of at least a second vaccination." But the directors are not disposed to give up any reasonable safeguards in admitting members into such a select body. After all, the directors are not so finical as might be thought. The London is an old institution, in its ninety-sixth year, and pays no commissions, depending on the members for its new applicants. Of course, it has an exceptionally light expense record, and an exceedingly favorable mortality experience, being run on the most conservative lines.—*Insurance Monitor.*

BOOK REVIEWS.

A MANUAL OF INSTRUCTION IN THE PRINCIPLES OF PROMPT AID TO THE INJURED, INCLUDING A CHAPTER ON HYGIENE AND THE DRILL REGULATIONS FOR THE HOSPITAL CORPS, U. S. A.—DESIGNED FOR MILITARY AND CIVIL USE. By ALVAH H. DOTY, M.D., Health Officer of the Port of New York, late Major and Surgeon, Ninth Regiment, N.G.S.N.Y.; late Attending Surgeon to Bellevue Hospital Dispensary, New York. Fourth Edition, Revised and Enlarged. 12mo. Pp. 318. New York, D. Appleton & Co.

This manual is already well known as one of the best of its kind. It is now further enhanced, in this, the fourth edition, by the entirely re-written chapter on Disinfection, adapting this subject to recent advances in knowledge of infectious germs and the means by which they may be most certainly destroyed. Steam is still considered the most practical and certain for bedding and other textile fabrics. This and other means are described in sufficient detail for all practical purposes. To this edition is also added the hospital-corps drill regulations now used by the U. S. Army, illustrated by diagrams and figures of litters, lifting and carrying the injured with the least possible discomfort. Numerous additional illustrations to this edition also elucidate the chapter on bandages, dressings, etc., of practical importance to all nurses and other persons who are desirous of knowing *what should be done* and *how to do it* as promptly as possible, when brought face to face with sudden injury or illness.

TUBERCULIN TEST OF IMPORTED CATTLE. BULLETIN NO. 32. RELATION OF BOVINE TUBERCULOSIS TO THE PUBLIC HEALTH, BULLETIN NO. 33. By D. E. SALMON, D.V.M., Chief of the Bureau of Animal Industry, U. S. Department of Agriculture, Washington: Government Printing Office.

Two important contributions, pp. 22 and 32, to the leading subject which now engages the attention of sanitarians. The "Relation of Bovine Tuberculosis to the Public Health," so prominently brought before the Tuberculosis Congress in London, by Dr. Robert Koch, a year ago, added vigor to the attention which Dr. Salmon and his colleagues of the Bureau of Animal Industry

had given the subject for several years, and had published some apparently definite conclusions, which Dr. Koch challenged by calling in question, at least, if not positively denying the communicability of bovine tuberculosis to man.

This paper (No. 33) is a comprehensive, though concise review of the subject, citing cases of accidental infection of man by inoculation with bovine bacilli; the infection of man by consuming the milk of tuberculous cows, and the danger of tuberculous meat. Appended are tabulated statistics of deaths from tuberculosis in England, Wales, Scotland and London; of Berlin, Paris and New York, with which all sanitarians should be familiar.

The "Tuberculin Test of Imported Cattle" is regarded as a necessary means of protecting our food-producing animals from the ravages of tuberculosis. This test, being in the nature of restriction upon the importation of cattle, has been the subject of unfavorable comment and efforts by some importers and their friends to secure its abandonment. This bulletin is a forceful presentation of reasons for its continuance, in the interest of the farmers as well as the public health of this country.

THE MEDICAL BOOK NEWS. July, 1902. The first number of a new periodical of twelve pages, the chief object of which is to furnish information of use to medical men in selecting and purchasing books on medicine and the allied sciences. This branch of literature has become so voluminous that the time now seems opportune for the issuing of a periodical devoted to it.

The *Medical Book News* will include:

Descriptions of important books.

Reviews from medical papers.

News Items.

Lists of the most recent American and English books of all publishers.

Lists of new books on special subjects.

Announcements of forthcoming books.

It is proposed to issue the *Medical Book News* bi-monthly, and to send it, without charge, to all who appear interested. Should sufficient encouragement be given the publishers, it will be enlarged in scope and every endeavor employed to increase its usefulness.

On such easy terms and promise of usefulness it doubtless will, as it should, be a welcome boon to all physicians. P. Blakiston's Son & Co., Philadelphia, Pa.

THIRTY-SIXTH ANNUAL REPORT OF THE AMERICAN SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS, FOR 1901. John Mason Knox, Secretary and Treasurer, New York.

The report laments the apparent lack of interest in the work of the Society. Looking back only twelve years, in 1889, it had only 200 fully qualified members. During the past year alone, 304 new members were enrolled and at the present the total enrolled membership is but 1,320 in a population of 75,000,000. On this the president remarks:

"There must be something wrong in our methods, or something lacking in our machinery, to account for such a disparity between the many thousands who approve and even acclaim the work of the Society, and the few hundreds who are enrolled as its supporters. In my opinion, the wrong, if any there be, lies in the supposition that the active work of increasing our membership can be done from our headquarters. That is simply not possible. The officers and employees of the Society are appointed for the purpose of transacting its business; the maintenance and extension of the Society itself more properly belongs to its unofficial members, and because this has not been borne in mind, there has been, and there still is, a serious lack of the activity and energy required to recruit new members and so to bring new life and energy into our organization. If one-fiftieth part of the zealous activity of other societies were devoted to this necessary work in our own, I am confident that the position of the Society would be immensely strengthened within a very few years. To become a member of the Society is not a costly privilege. A life member pays only one hundred dollars and no more unless at his own discretion. Annual members pay only five dollars. Among the many thousands of persons who speak and write in strong terms of sympathy for our work, I am confident that very few would be deterred from joining our ranks by the consideration of so small a contribution. All that is needed to secure both them and their contributions is that they should be asked by our present members to join their ranks. Of the moral strength which such an accession would bring to us it is needless to speak; but the pecuniary addition to our resources by the aggregation of many small annual contributions might be much larger than one would suppose. If every one of our present members were to induce a friend or acquaintance to become an annual member, the amount received from membership fees would at once be raised from $6,600 to $13,200."

The secretary's summary of the work in the year comprised:

Arrests and prosecutions, 606; animals suspended from labor, 4,626; horses, mules and other large animals disabled past recovery, humanely destroyed, 3,348; small animals, homeless or disabled past recovery, humanely destroyed, 90,480; disabled horses and other large animals removed from the streets in ambulances, 541; cases investigated, 54,712.

Appended is a list of similar and kindred societies devoted to the same purpose in almost every part of the world.

REPORTS, REPRINTS, ETC., RECEIVED.

Eclipse Meteorology and Allied Problems, Frank H. Bigelow, M.A., L.H.D., Prof. Meteorology, Weather Bureau, Department of Agriculture, Washington, D. C.

Report of Work of Agricultural Experimental Station, University of California, 1897-'98.

American Breeds of Cattle, Geo. M. Rommel, B.S.A., Bulletin 34. Bureau of Animal Industry.

Loss of Life in the United States by Lightning, Alfred J. Henry, Bulletin 30, Weather Bureau, Washington, D. C.

Animal Parasites—Eleven Miscellaneous Papers, D. E. Salmon, D.V.M., Chief of Bureau of Animal Industry. Bulletin 35, Department of Agriculture.

Nutrition Investigations Among Fruitarians and Chinese, M. E. Taffa, M.S. California Agricultural Experiment Station. Bulletin 107, U. S. Department Agriculture, Washington, D. C.

Hay Fever and Asthma, Floyd S. Muckey, M.D., Minneapolis, Minn.

Index Catalogue of Medical and Veterinary Zoology, Part I, A to Azevedo, Charles Wardell Stiles, Ph.D., and Albert Hassall, M.R.C.V.S. Bulletin 39, Bureau of Animal Industry, Department of Agriculture, Washington, D. C.

Nicaragua or Panama: Substance of a Series of Conferences before Commercial Clubs, Leagues, Etc., and Final Address to the Chamber of Commerce, New York, by Philippe Bunau-Varilla, Former Engineer in Chief of the Panama Canal.

Phylloxera of the Vine, Frederic T. Bioletti and E. H. Twight, College of Agriculture, Agriculture Experiment Station, University of California.

The Potato Worm in California, Warren T. Clarke, College of Agriculture, Agriculture Experiment Station, University of California.

Pathological and Bacteriological Laboratory. Bulletin Delaware State Board of Health, Newark, Del.

Eminent Physicians' Portraits, Mariani & Co., Paris.

United States Army General Hospital, Presidio, Cal., 1900 and 1901, Lieut.-Col. A. C. Girard.

Report of the New York State Hospital for the Care of Crippled and Deformed Children, 1901. Tarrytown, N. Y.

Sanitary Aspects of Nicaragua vs. Those of Panama, J. Edward Stubbert, M.D., New York.

Early Diagnosis and Treatment of Tuberculosis. Ibid.

Plea for Accepted Nomenclature With Reference to the Classification of Pulmonary Tuberculosis. Ibid.

Subsequent History of Patients Apparently Cured Under Administration of Anti-Tubercular Serum as an Auxiliary to Climatic Treatment. Ibid.

Climate: What It Means, Los Angeles Chamber of Commerce, Los Angeles, Cal.

Indications for the Utility of Altitude Treatment of Tuberculosis, S. E. Solly, M.D., Colorado Springs, Col.

Comparative Study of the Climate of Santa Barbara, C. M. Richter, M.D., San Francisco, Cal.

Nutrition in Pulmonary Tuberculosis, Albert Alranus, M.D., San Francisco, Cal.

Respiratory Gymnastics. Ibid.

The Pleural Friction Sound. Ibid.

Spasmodic Bronchostenosis. Ibid.

Roentgen Rays in Pulmonary Disease. Ibid.

Ophthalmoscope, History and Invention of, Harry Friedenwald, M.D., Baltimore, Md.

Market Classes of Horses, Geo. M. Rommel, B.S.A., Bureau of Animal Industry. Bulletin 37, Department of Agriculture, Washington, D.C.

Half-Hitch Suture, The, Ch. P. Noble, M.D., Philadelphia.

Treatment of Suppuration in the Uterine Appendages. Ibid.

Apoplectiform Septicemia in Chickens, Victor A. Nörgaard, V.S. (Copenhagen), Bureau of Animal Industry. Bulletin 36, U. S. Department of Agriculture, Washington, D. C.

Description and Treatment of Scabies in Cattle, Richard W. Hickman, Bureau of Animal Industry. Bulletin 40, Department of Agriculture, Washington, D. C.

Mexico as a Market for Purebred Cattle from the United States,

D. E. Salmon, D.V.M., Chief of Bureau of Animal Industry. Bulletin 41, Department of Agriculture, Washington, D. C.

Yellow Fever in France, Italy, Great Britain and Austria, and Bibliography of Yellow Fever in Europe. Yellow Fever Institute Bulletin, U. S. M. Hospital Service, Washington, D.C.

What Shall We Do About the Mosquito? Dr. Putnam Kohnke. Proceedings of the Orleans Parish Medical Society, New Orleans, La.

Vineyards in Santa Clara Valley, Frederick T. Bioletti and E. H. Twight, College of Agriculture. Bulletin 134, Agricultural Station, University of California.

Phyloxera of the Vine. Ibid.

Epignathus, Charles Jewett, M.D., Brooklyn, N. Y.

Diagnosis of Pregnancy in the Early Months. Ibid.

Spinal Braces in Lateral Curvature. A. B. Judson, M.D., New York.

Mycosis of the Tonsil and Base of the Tongue, E. Harrison Griffin, M.D., New York.

Hemorrhagic Diathesis in Operations on the Nose and Throat. Ibid.

Intratracheal Injections in the Treatment of Bronchitis, William S. Anderson, M.D., Detroit, Mich.

Yellow Fever Institute, Bulletins Nos. 1, 2, 3, 4, 5, 6 and 7, U. S. Hospital Service, Washington, D. C.

Removal of a Sole Leather Bougie from the Male Urethra and a Mulberry Calculus from the Bladder, Jno. A. Sutcliffe, M.D., Indianapolis, Ind.

Irrigation in the United States, Frederick Haynes Newell, Hydraulic Engineer and Chief of Division of Hydrography, U. S. Geological Survey, Washington, D. C.

Influence of Electric Ozonation Upon Disease, J. Lenox Curtis, M.D., New York.

Climatography of Arizona, Robert W. Craig, M.D., Phœnix, Ariz.

Optic Neuritis in the Young, William Cheatham, M.D., Louisville, Ky.

Pennsylvania Society for the Prevention of Tuberculosis, Report for year ending March 1, 1902, Miss E. W. Redfield, Corresponding Secretary, 107 N. 34th street, Philadelphia, Pa.

Uterine Hemorrhage, Septimus Sunderland, M.D., London, England.

Anti-Phthisic Serum, Report on, Earl Sprague Bullock, M.D., Silver City, N. M.

Syllabus of Bacteriology, The Palisade Manufacturing Co., Yonkers, N. Y.

Benzoate of Guiacol, Some of the Uses of, Samuel E. Earp, M.D., Indianapolis, Ind.

Central Indiana Hospital for the Insane, Fifty-third Annual Report, 1901, Indianapolis, Ind.

Pneumatic Differentiation in the Treatment of Organic Disease of the Heart, Ch. E. Quimby, New York.

Sulphur Dioxide as a Germicidal Agent, H. D. Geddings, P. A. Surgeon, Hygienic Laboratory, U. S. M. Hospital Service, Washington, D. C.

Coughs: Their Suppression and Cure, Dr. Louis DeLorne, New York.

Southern California, Observations on, Samuel A. Fiske, Denver, Col.

Diagnostic Importance of the Examination of the Feces, Charles D. Aaron, M.D., Detroit, Mich.

Yellow Fever, The Prevention of, Walter Reed, M.D., Surgeon, U. S. Army, and James Carroll, M.D., Contract Surgeon, U. S. Army.

Physiology the Basis of Clinical Medicine, G. W. McCaskey, M.D., South Bend, Ind.

The Twentieth Century City American League for City Improvement, Springfield, Ohio.

Optic Nerve in Relation to Nervous Diseases, Edward W. Wright, M.D., Brooklyn, N. Y.

A School of Citizenship, Y. M. C. A., Brooklyn, N. Y.

Tuberculin, The Uses of, Chas. Denison, M.D., Denver, Col.

Devitalized Air Toxemia a Prime Cause of Tuberculosis. Ibid.

Relation of Outdoor Life to High Altitude Therapy. Ibid.

Scarlet Fever: Its Treatment, James A. Knight, M.D., Eatonton, Ga.

X-Ray and Dissection of the Ureter and Utero-Ovarian Artery, Byron Robinson, M.D., Chicago, Ill.

Tent Life and Simplicity in Therapeutics of Phthisis Pulmonali, Wm. K. Robinson, M.D., Denver, Col.

Cataphoric Treatment of Cancer, G. Betton Massey, M.D., Philadelphia, Pa.

Hydrocele and Its Treatment, Orville Horwitz, M.D., Kansas City, Mo.

Relative Value of Medical Advertising, John Punton, M.D., Kansas City, Mo.

Throat Paralyses, John Edwin Rhodes, M.D., Chicago, Ill.

Medical Science in America, The History of the Development of: A Historical Study, H. R. M. Landis, M.D., Lea Bros. & Co., Philadelphia, Pa.

Backlands and Their Inhabitants, Peter Fyfe, Chief Sanitary Inspector, Glasgow, Scotland.

Diagnosis of Diaphragmatic Hernia, E. Fletcher Ingalls, Chicago, Ill.

Cancer of the Penis, Henry H. Morton, M.D., New York.

Disinfection Against Mosquitoes with Sulphur Dioxide and Formaldehyde, M. J. Rosenenau. Bulletin 6, Laboratory U. S. Marine Hospital Service, Washington, D. C.

Viability of the Bacillus Pestis. Ibid.

Sulphur Dioxide as a Germicidal Agent, H. D. Geddings. Ibid.

American Breeds of Fowls: The Wyandotte, F. F. McGrew, Bureau of Animal Industry. Bulletin 31, U. S. Department of Agriculture, Washington, D. C.

The Blood Count at High Altitudes, W. A. Campbell, M.D., Colorado Springs, Col.

Dermoid Tumors, Wm. Davis Foster, Kansas City, Mo.

Perineal Prostatectomy, Parker Syms, M.D., New York.

National Irrigation, Thos. F. Walsh, President of National Association, Chicago, Ill.

Bacteriology of the Conjunctival Sac, P. Chalmers Jameson, M.D., Brooklyn, N. Y.

Chronic Gonorrhœa and Past Gonorrhœal Urethritis, Ferd C. Valentine, M.D., New York.

Myotonia Congenita, Charles Fox Gardiner, Chicago, Ill.

Chancre of Tonsil, John Edwin Rhodes, M.D., Chicago, Ill.

Relation of the Medical Editor to Original Communications, Harold N. Moyer, M.D., Chicago, Ill.

Floating Kidney Idolatry: A Polemic, A. Rose, M.D., New York.

Colorado Climate, Influence of, upon Pulmonary Hemorrhages, S. G. Bonney, M.D., Denver, Col.

Hygienic Cure of Pulmonary Tuberculosis, The Feasibility and Management of, Outside of Closed Sanatoria, Charles L. Mindor, M.D., Asheville, N. C.

The Technics of Nephropexy as an Operation Per Se, and as Modified, Geo. M. Edebohls, M.D., New York.

CONTEMPORARY LITERATURE.

THE EDWARDS?

In the July *St. Nicholas* Arthur Johnson Evans raises the question: "Is King Edward really Edward the Seventh?" He speaks of a little discussion he had in England recently with some young relatives of his, and he recalls to the reader what a good many of us have perhaps forgotten, that there are at least three Edwards whom history has failed to designate with numerals. Edward the Confessor was one. Then there was Edward the Elder, who reigned just after Alfred the Great, and Edward the Martyr, who figured in English history just before Ethelred. But the author, instead of suggesting that England's new monarch have a few numbers added to his name, makes the statement that in reality he is the first Edward to be ruler of Great Britain and Ireland. The other Edwards of history were simply kings of England. This little discussion really serves as an introduction to many interesting facts and anecdotes of English history, particularly timely at this coronation season.

KING EDWARD AND AMERICANS.

Mr. George W. Smalley in a personal article about King Edward VII. in *The Outlook* says:

We Americans have certain prejudices to get rid of before we can do justice to a king. But we ought to be just to this one, if only because he has approved himself, as did his mother before him, our friend. It has become a commonplace to say so; and the commonplaceness of it is good proof of its truth. Americans of distinction who have been abroad are so many witnesses of the fact. They have been welcomed at Marlboro' House, or at Homburg, or at Sandringham; so have other Americans whose chief claim to distinction was their Americanism—which itself for many years has been a passport across many a social frontier in England. The Queen's real regard for the United States and real wish for a good understanding between England and the United States has descended to her son. I will venture to add, delicate as the ground is to tread, that American women in London have done much to foster this inherited and personal predisposition. From the earliest days of the American invasion, when American women, of whom some are still living, began to enliven London society and to light up certain waste spaces of social life, the

Prince showed himself susceptible to these new enchantments. The influence thus gained has never been lost, nor the effect of it diminished. The Prince liked Americans. The King likes them. It may not be amiss to note that two American women whose rank as wives of British husbands would not entitle them to witness the coronation in Westminster Abbey will witness it as guests of the King. It certainly cannot be amiss to note that the first Ambassador with whom the King has dined is the American Ambassador, Mr. Choate. And when the President appointed Mr. Whitelaw Reid Special Ambassador for the coronation, the King first intimated through official channels his pleasure in this act of our Government, then sent a private message to say how glad he was that the Ambassador should be Mr. Reid, who had held the same post at the Queen's jubilee.

THE BRITISH KING'S REAL POWER.

That power resulting from a privileged position which makes him privy to all the counsels of his ministers, and which also makes him the most conspicuous symbol of imperial unity, is undoubtedly much greater than most political men are willing to admit. The British colonies, year by year, become more and more independent nations. The most loyal among them would revolt to-morrow if it were required to submit to the domination of the Imperial Parliament. But one and all submit eagerly to the supremacy of the British crown. There is nothing which angers a native-born colonist so much as to suggest that he is in any way the subject of the inhabitants of the mother country. The complacent talk in London newspapers about "our empire" provokes nothing but resentment among colonists, who, sometimes with oaths and curses, repudiate the arrogant assumption that they in any way belong to the mother country. But inasmuch as the power of the crown has long since been reduced to a mere shadow impotent to harm, and as the throne of Alfred the Conqueror, of Richard the Lion Heart, and of Edward III. still looms large on the horizon of history, they are most profuse in their protestations of loyalty to the King. He never does them any harm, he interests them as a picturesque human figure, raised sufficiently above the heads of the common crowd as to be visible all round the world; he is in their eyes the symbol of unity, and honors bestowed by him acquire an added grace by the fact that they have passed through his hands. Hence it is doubtful whether the empire would survive the disappearance of the monarchy—anachronism though the

crown may appear to the matter-of-fact American, it nevertheless serves a practical end, and any attempt to replace it would have far-reaching results.—From "The South African Peace, the Coronation and the British Outlook," by W. T. Stead, in the *American Monthly Review of Reviews* for July.

ROWING FOR WOMEN.

The freedom of skiff rowing is most refreshing to mentally tense or nervous persons, who would chafe under the critical instruction and tire under the exactness of a crew's drill. On the other hand, the alert and rhythmical muscular action, the perfection of response of the muscles to the will, in unison with others in the boat, has a fascination which is a real stimulus to those who can profit by crew rowing.

The physical benefits which women derive from rowing cannot be exaggerated, provided they are willing to master the rudiments of the sport—for one must strive for good form, deep breathing, strength of back and chest, and wear no tight or stiff clothing about the waist. Correct rowing induces an erect carriage and finely poised head, a full chest and well-placed shoulders. Incorrect rowing disturbs all harmony of the figure. One can row one's-self round-shouldered as easily as erect! Indeed, many girls lose the beneficial results they fancy they are gaining by rowing, through ignorance of a few simple fundamental principles of the exercise.—From "Athletic Exercise for Women," by Lucille Eaton Hill, Director of Physical Training, Wellesley College, in *The Delineator* for August.

SUMMER FICTION.

The July *Century* is a "Summer Fiction Number," containing contributions in this field from popular writers and from newcomers. There is a short story by the late Paul Leicester Ford, entitled "Wanted: A Chaperon," with illustrations by Gilbert, probably the last piece of completed fiction by the author of "Janice Meredith." To Dr. Weir Mitchell's group of "Little Stories" is added a piquant sketch entitled "A Dilemma," setting forth a "lady or the tiger"-ish problem; David Gray, author of "Gallops," contributes a car-horse story entitled "Ting-a-Ling," and Frank Norris a story of the frontier West entitled "The Passing of Cock Eye Blacklock;" Harry Stillwell Edwards, author of "Two Runaways," prints a rollicking story of rival negro churches in the South, "The Little Unpleasantness at New Hope." There are also

stories by Louise Collier Wilcox, Will N. Harben and Charles Bryant Howard, the last a bit of West Indian local color. The variety of this list is further extended by the fourth part of the "Confessions of a Wife," by Mary Adams, the theme of which is Estrangement, as those of the preceding portions have been respectively, Courtship, Marriage and Motherhood.

Two summer topics are "The Strange Adventures of a Blue Jay Family," by Frank M. Chapman of the American Museum of Natural History, and "A Campaign against the Mosquito," by Dr. L. O. Howard of the Agricultural Department, who gives a note on "The Growing Interest in Mosquito Extermination," and by Henry Clay Weeks, who describes the "Operations at Oyster Bay, L. I." Two articles of special interest are "Curious Electrical Forms," by Anabel Parker, illustrated from photographs of the experiments of T. Burton Kinraide of Boston, and a personal and critical appreciation of "Eugene Field, the Humorist," by Francis Wilson, the actor, with interesting pictures and facsimiles. Among the poems are "The Heart of Truth," by L. Frank Tooker, and a tribute by Julie M. Lippmann "To Our 'Merry Chanter'" (Frank R. Stockton), to whom also an editorial article is devoted.

RELATIVE TO PROCTOR'S.

The success of summer vaudeville at summer prices in Newark has induced General Manager J. Austin Fynes to keep Proctor's open throughout the year.

The Fifth Avenue and the One Hundred and Twenty-fifth Street, New York, will likewise remain open uninterruptedly. Here the Proctor Stock Co., embracing an assemblage of local favorites, will present light comedy bills, with a weekly change.

The best acts of foreign and American fame are weekly presented, the Twenty-third Street Theatre being solely given over to vaudeville bills, offered in continuous performance. Twenty-third Street was, by the way, New York's first home of the continuous, and has for several years maintained an enviable reputation for the refined and diverting bills which have been there presented.

Proctor's theatres in Albany and Montreal always enjoy great prosperity in Summer. The Proctor Stock Co. has permanent branches in these cities, and the latest metropolitan successes are produced week after week. At all the Proctor theatres vaudeville is a factor in the entertainments.

SANITARY SCIENCE.

A SYNOPSIS OF SANITARY SCIENCES AS REPRESENTED IN THE SANITARIAN, ALPHABETICALLY.*

By The Editor.

Fraser, J. W., Influence of Tea, Coffee and Cocoa on Digestion, xix, 308.
Free Antitoxin, xxxiv, 439.
Free Love, xxiv, 442.
Free Parks and Camping Grounds for Children, J. M. Town, i, 71.
Free Public Baths, xxxiv, 519.
Free Sanitarium, J. J. Caldwell, i, 184.
Freire, D., Vaccination in Yellow Fever, xix, 208.
Freire's Inoculations and the Yellow Fever Commission, L. A. Watson, xvi, 352.
French Army, Vital Statistics of, xli, 362.
French Birth-rate and Depopulation, xxvii, 372.
French Brandy, Laborde, xxxv, 343.
French, J. M., Immunity, Natural and Acquired, xxxvii, 43.
Frenkel, L. K., Food Adulteration and the Pure Food Law, xxxviii, 512.
Frenum, Sublingual, Section of, Reboul, xl, 158.
Fresh Air Fallacy, The, T. M. Coan, xi, 345.
Friedenwald, J., Pettenkofer's Personal Experiments with the Cholera Germ, xxx, 148.
Friends and Collaborators, i, 89, 184.
Friendship, the Undying Bond, xliii, 477.
Froebel's Kindergarten Theories, iv, 245.
Froelich, O., Purification of Drinking Water, xxviii, 54.
Fruits of California, xxxi, 570.
Fruits, A New Way of Ripening, xxxviii, 545.
Fruits in Cholera Times, i, 358.
Fruit, Poisons on, xxxii, 561.
Fruits Should be Washed before Eating, xxviii, 217.
Fruit Food, the Office of, xxxv, 382.
Fry, F. R., Manufacture of Soda Water from Polluted Well Water, xiii, 543.
Fuller, F. C., Modern Antiseptic Surgery, xiii, 440.

* Continued from previous number.

Fuller, G. W., Sand Filtration of Water, with Results, xxxiv, 37; Pollution of Water Supplies, xlv, 501.
Funeral Reform, F. Lawrence, xv, 405.
Fungi, Wholesome, xi, 391.
Fulton, J. S., Does Vaccination Protect?, xliii, 40.
Funny Ads, xxxvi, 563.
Furnace, A Sanitary, W. S. Ross, xi, 513.
Furnace-air Supply Boxes as Vehicles of Disease, Edgar Holden, xi, 179.
Furnaces, Cast Iron or Wrought Iron? R. C. Kedzie, ii, 312.
Furnaces, Hot-air, Purification of the Air from, S. G. Dixon, xxiv, 239.
Fusible Metal, xxii, 109.
Fyfe, P., Sanitation and Death-rate in Scotland, xxviii, 537; Practical Sanitation in Glasgow, xxxvii, 514; Health Report, xl, 183.
Gallatin, James, Tenement-house Reform in New York, xi, 122.
Galliard, M., Chronic Headache, Treated with Calomel, xxxvi, 392.
Galt, William, M.D., Health Officer of Louisville, xi, 269.
Galton, C. B., The Progress of Sanitation, xviii, 97.
Galton, D., Economy in Sanitation, xi, 401, 421, 453, 465; Technical Education, Commercial Training and Sanitary Progress, xix, 481.
Galveston Calamity, The, xlv, 337.
Galvanism in Neuralgia, xli, 449.
Gangrene of the Limbs, Panas, xxxiii, 268.
Gannett, Henry, Negro Population, Rate of Increase, xiv, 508; Decadence of in the United States, xlii, 465.

GARBAGE AND STREET REFUSE DISPOSAL.—At meeting of American Public Health Association, in Nashville, Tenn., 1879:

Rev. Hugh Miller Thompson: "When the Auxiliary Sanitary Association was formed last year, one of the first practical questions which came before it was the disposal of garbage and offal. That the hitherto prevailing practice of utilizing it for street making and lot filling would not answer, was pretty well settled. Whether the yellow fever of the previous summer was or was not intensified by filth, the Association did not care to debate. On the general principle that rotten garbage and dead dogs are not healthy compost for macadamizing the streets of a great semi-tropical city, they determined to dispose of these substances in some other fashion.

"There was talk of cremation. It seemed impractical and expensive. There was talk of utilizing the garbage by converting it into a fertilizer—a beautiful and attractive plan, which, clearly, in the rich lands of Louisiana at least, would not pay, and which would still necessitate the use of a 'dumping ground' and the handling and picking over of the filth.

"There remained the river. It runs by New Orleans with a velocity of from two to four miles an hour. Its depth is between 100 and 200 feet. It is a vast, swift body—the accumulated drainage of half a continent. It was seen that nature had provided, as usual, for man's needs, if only man had the sense to use the provisions. Once in the Mississippi River, the garbage would be sent about its business for good. . . .

"Prof. W. H. Brewer, of New Haven, said that he had found in some of the New England cities that kitchen garbage had been very disastrous to pigs and swine—many of them having died from eating it. On this account it was in great disrepute among farmers, and it came to be used on lands simply as manure. Street cleanings had often been found worthless as manures. The material taken from catch-basins was almost useless as manure, and had been discarded. . . .

"Dr. A. N. Bell, of New York, said that the value of street cleanings differed in different places. Some farmers around New York had regarded the street cleanings of that city and Brooklyn as valuable, and had offered to take them without cost to the city governments. He supposed their value depended, in a great measure, upon their freshness—before they had lain too long, subject to the decomposing influence of the sun's rays. So, too, in regard to the value of garbage as food for hogs; it hardly seemed necessary to state that it should be fresh, and that it was dangerous matter to keep about the house; both health and utility required its prompt removal. While for filling purposes, to which it had been freely applied in most of our cities, it should be prohibited, as it was in a high degree dangerous, and for an almost indefinite period of time. The Harlem marsh, of New York, which was being built over, was full of animal matter and foul odors from this cause, and would, doubtless, for many years be unhealthful for human habitation. He knew of cellars in New York thirty or forty feet below the sewer, founded at the bottoms of pits years before filled up with street sweepings and house garbage. Just think of the inflow of foul gases from this cause in houses, and no pains taken to make the cellar floors and walls impervious! . . .

"Dr. W. F. Campbell, of Augusta, Ga., remarked that the odor from garbage or flesh did not remain as long as some believed. He gave an instance of exhuming a murdered man ten months after death, where no odor remained. An earthy smell was only to be observed. The flesh could be stripped from the bones with newspapers, with no disagreeable effect upon those doing the work. The flesh had been so completely destroyed that even a knife did not have to be used in removing the tendons.

"Dr. Bell suggested that the body had been buried in sandy soil.

"Dr. Campbell said that he had given this as an isolated case, and as showing another side to the question of how long an odor remained in the earth.

"Prof. Brewer said it was a well-known fact that the bottoms of fence posts decayed much more rapidly when on a hill than in a bottom. So it was with bodies. If buried on a hill, decay set in much sooner than when interred in a bottom; and this might furnish a reason why all bodies should be buried in elevated instead of low places."—vii, 545.

The Ultimate Disposal, by Fire, J. M. Keating, xiv, 97, Domestic Garbage Burner, 480; George Baird, xvii, 334, Utilization of, T. D. McElhenie, xvii, 527; E. H. Janes, *et al.*, xviii, 139; L. Labarge, xix, 446; S. S. Kilvington, xxiv, 20; Fal., Clark, Morse, xxvii, 505; Cremation, xxx, 298; W. F. Morse, xxxi, 512; The Boston Plant, xxxi, 82; and Offal, Collection of, xxxii, 70; The Utilization of, Bruno Terne, 126, L. C. D'Homergue, 227; Shifting, xxxiii, 176; Cremation of, 380; Economic and Efficient methods of, Thomas H. Manly and Douglas H. Stewart, xxiv, 3, W. F. Morse, 223, Discussion on, M. S. Ingliss, Rudolph Herring, S. H. Durgin, 137; and Sewage, of Manchester, England, W. F. Grinnell, xxxv, 433; in Brooklyn, xxxvii, 550; Rudolph Herring, xxxix, 485, W. S. Pierce, 299; Unsatisfactory Condition of in America, xl, 20, Benj. Lee, 99, Proper Disposal of Sewage, C. E. Grunsky, 289, T. B. Carpenter, 395; Cremation, xliii, 323, and Excreta in Military Camps, Benj. Lee, 529, Next Step in the Work of Disposal of, W. F. Morse, 481; Gathering, xlv, 257.

Garbage Furnaces, S. S. Kilvington, xxi, 481.

Garden City, L. I., A. N. Bell, vi, 107, 183; vii, 182, 230; viii, 230.

Gardiner, C. F., Dangers of Tuberculosis Infection, xxxix, 28; Treatment of, by Air and Light, xliii, 15.

Gardner, J. T., Relation between Topographical Surveys and the Study of Public Health, v, 385.

Gardner, W. M., Production of Artificial Light Equal to Daylight, xlvii, 334.
Gargling, The True Value of, xliii, 534.
Garland, Simon, Salting the Streets for the Removal of Snow, iv, 105.
Garish, J. P., Necessity of Increased School Accommodation, v, 159.
Garnett, A. Y. P., Sanitary Advantages of Tide Water, xix, 97.
Garrison, B. B., Come Home, Dear Wanderer, Come Home, xl, 54.
Garstang, Dr., Improved Methods of Sewage Disposal, xliv, 487.
Gas-Contaminated Water, xxxv, 62.
Gas, Cooking and Heating with, xi, 410; J. R. Thomas, xxiii, 41; Advantages of, xxxii, 61.
Gas-fitting and Fatal Gas-Accidents, xxxv, 228.
Gas Poisoning, xxxviii, 359.
Gases of Decay, W. H. Brewer, iv, 547.
Gases, Illumination, Made of Coal and Water, Relative Dangers of, xi, 456.
Gases, Injurious, Prof. D. O'Brien, xviii, 252.
Gasoline Stoves, xxi, 518.
Gas-pipe Leaks, How to Detect, viii, 217; Dangers, xli, 507.
Gastric Ulcer, Tourette, xxxiii, 166.
Gas Stoves, xviii, 531; A. von Ihering, xxxix, 438.
Gastro-Enteropathy, Debone, xxxvii, 444.
Gastro-Stomie, xxiv, 379.
Gauthier, A., Vitiation of the Atmosphere of Houses, xlv, 299.
Gauthier, S., School Hygiene, xxxiv, 201.
Gayol, R., Drainage of the City of Mexico, xxvii, 504.
Gavatt, C. U., Practical Suggestions in the Management of Cholera, xxix, 312.
Geddings, W. H., History of Leprosy on the Eastern Coast of the United States, xxvii, 443.
Geisler, J. H., Watered Milk, xl, 119.
Gelatin, The Hemostatic Action of, xxxvii, 249.
Geneva Sanitary Congress, x, 748.
Genius, The, and the Crank, xxxvii, 284.
Genone, Hudor, The Egotist's Cure, xxxvi, 153.
Geographical Distribution of the Mineral Springs of the United States, A. C. Peale, xxxvi, 236.
"Gentlemen Are Requested not to Smoke in This Room," xi, 75.

Geology and Topography, Sanitary Relations of, P. J. Farnsworth, xii, 206.
Georgia, Mineral Springs of, A. N. Bell, xxx, 337.
Georgia's Necessity, W. A. Love, vii, 469.
Gerhard, W. P., House Drainage and Sanitary Plumbing, x, 527, 577; The Rain Bath, xxxii, 312; Sanitary Engineering, xxxiv, 214; Work of the Sanitary Engineer, 481; Theater Sanitation, xli, 481.
Germicidal and Antiseptic Powers of Certain Mineral and Vegetable Substances, Joseph Jones, xix, 221.
Germicide, Soap as a, xlii, 87.
Germs and Their Culture—Atmospheric Pollution, An Expert, xxvii, 97; How Do They Induce Disease? Victor C. Vaughan, xxii, 355.
Germ Breeders, Brooms as, xliii, 252.
Germs and Disease, O. W. Peck, xxi, 16.
Germ Disease, Theory of, Koch, viii, 246; Pasteur, ix, 540; Before the Christian Era, xl, 544.
Germs, Malarial, Aerial Transportation of, R. C. Newton, xxxv, 257.
Germs, Pathogenic, Action of the Soil on, xxv, 17; Vitality of, B. M. Bolton, xl, 206.
Germs, Disease, Power of Soil and Vegetation to Destroy, A. Carpenter, xxviii, 41.
German Employment of Women and Children, xl, 14.
German Measles in New York, J. Louis Smith, ii, 162.
German Miners, Baths for, xxxvii, 202.
German Public Health Association, xi, 460.
German Red Cross Medal, The, xlii, 450.
German Society of Public Hygiene, xlii, 538.
Germany, Hog Inspection in, xliv, 58.
Germany, Meat Inspection, xliv, 58, Meat Imports, 61.
Germany, Political, xl, 479.
Germer, E. W., Vaccination and Vaccine Farms, xvi, 242.
Gertrude, Sister Rose, xxiv, 524.
Getchell, A. C., Bicycling in Relation to Heart Disease, xliii, 31.
Getting the Best of Him by Long Chalks, vii, 457.
Getting up a Relish, vii, 496.
Ghoughphtheightteeau, xxviii, 334.
Gibbs, H., Tuberculosis—A Retrospect, xlvii, 46.
Gibbs, B. F., Experimental Investigation of Yellow Fever, ix, 406.
Gibson, W. H., Poison Ivy and Poison Sumach, xxv, 232; Puff Balls as Food, xxxiii, 285.

Gifford, John, Healthful Influence of New Jersey Forests, xxxiv, 17.
Gihon, A. L., Sanitary Reform in Ship Life, v, 97; Venereal Diseases, viii, 23, 316, 377; ix, 24; Tobacco in the Naval Academy, ix, 265; Health, the True Nobility, x, 30; Prevention of Venereal Diseases, 321, State Medicine, 483; xi: Medical Education or Code, 486; Practical Sanitation in the Navy, 628; Vital Statistics as Sanitary Monitors, 785; Thirty Years' Progress in the Navy, xii, 221; President of American Academy of Medicine, xiii, 560; Sanitary Responsibility of the Citizen, xiv, 1; Preventive Medicine, xvii, 40; Dominion of Climatology and Demography, xix, 224; Therapy of Ocean Climate, xxiii, 205; Hygiene of Cholera, xxix, 304; Hygiene, Climatology and Demography, xxxi, 372; Sanitary Motes and Beams, 385; Sanitary and Medical Service on Emigrant Ships, xxxii, 21; The Rush Monument, xxxv, 35; The Bicycle in Its Sanitary Aspect, xxxvii, 353.
Gilbert, S. G., Summer Health Resorts, xiv, 450.
Giles, Capt. P. J. J., The Sanitarian, i, 285.
Gill, H. Z., State Prisons of the United States, xi, 705.
Gilman, A., Women Who Go to College, xxi, 205.
Ginger Beer, A Theoretical Study of, xi, 394.
Girard, M., Adulteration of Food, xi, 168.
Girls, College, The Health of, xliv, 479.
Girondin Disinfectant, vi, 288.
Gladstone—Why He Lay Awake, xxx, 557.
Gladstone and Tennyson, xli, 92.
Glanders, xi, 508, xvii, 166.
Glanders in Man, J. Sharp, xxvii, 499.
Glands, Secretions of the, Gomez Ocama, xlvii, 515.
Glasgow, Sanitary Condition of, W. Russell, xvii, 352; Practical Sanitation in, xxxvii, 514; xl, 183.
Glasgow, W. A., Aneurysm of the Aorta, xxxiii, 197. Physical Signs of Cellular Œdema, 307; Glasgow Tenement-houses and Dwellings for Working People, W. F. Morse, xxxv, 311.
Glass, Wonderful Discovery in—The Future of the Microscope, xxi, 356.
Glasses, Bifocal—A Boon to Busy People, xlii, 560.
Glass-Blowers, Dilatation of the Cheeks in, a Cause of Disease, xxviii, 257.
Glenn, W. F., Iodia in Syphilis, xli, 42.
Glue, Impermeable, xxvi, 299.

Glue which Will Unite Even Polished Steel, xxvi, 383.
Gluten, xi, 84.
Glycerine in Beer, vii, 37.
Glycogen in Tumors, M. Brault, xxxiv, 239.
Glycozone in Chronic Gastritis, L. A. Kensla, xli, 42.
"Go South for the Winter," v, 566.
Goat Milk, xlvi, 432.
Godliness and Uncleanliness, and Disease, Bell, xlvii, 343.
Godwin, Park, Homes for Laboring Classes, iii, 225.
Going Slow, xxxviii, 92.
Gold as Medicine, Ohmann-Dumesnill, xxxiv, 236.
Gold in the Water of the Ocean, xxxiv, 515.
Gold's New Heater, iii, 236.
Golden Rod, Poisonous? xxxvi, 563.
Good as Well as Bad in Everyone, xxxvii, 283.
Good Humor, iv, 457.
Good Preaching in Philadelphia, xi, 599.
Good Reason, xli, 66.
Good Subject for Physiological Experimentation, xxvi, 510.
Gordon, C., Safety Lamps in Mining Operations, xix, 103.
Gordon, T. W., Results of Mistaken Diagnosis, xviii, 216.
Gospel, The, of Soap and Water, xliii, 455.
Gout, A Picture of the, xlv, 150; and Arthritism, xlvii, 55.
Gout, The Prevention of, F. W. Donlin, xxxiv, 234; Treatment of by Natural Mineral Waters, Ransom, xxxix, 30.
Gout, The Alimentary Regimen of, xxii, 90.
Gove, G. S., Altitude—Its Effect upon Different Individuals, xxxviii, 226.
Governor Robinson's Lesson to New York and Brooklyn's Boards of Health on Cow Stables, vii, 138.
Government of Cities, xlvii, 477.
Gowanus Canal Nuisance (Brooklyn), vi, 373; Father Microbe and, illustrated, xxx, 371.
Grafting Living Bones, M. Ricard, xli, 447.
Graham Flour, vi, 449.
Graham, T. A., Vaccination, xiv, 157.
Grandfather's His, It was, xxv, 309.
Granjux, M. le Docteur, Smallpox Epidemic at Dieppe, x, 86.
Grand Old Man of Medicine, xxxii, 572.
Grandin, E. H., *et al.*, Sanitary Condition of New York, xxxii, 219.
"Gran'ma Al'us Does," ix, 369.

THE SANITARIAN.

SEPTEMBER, 1902.

NUMBER 394.

CAUSES, AND SUGGESTIONS FOR THE PREVENTION, OF TUBERCULOSIS.

PRESIDENTIAL ADDRESS.*

By HENRY D. HOLTON, A. M., M. D.

It is estimated that one-seventh of the world's population die from tuberculosis every year. That in this country, including its insular possessions, there are upward of half a million persons suffering from tuberculosis; of these cases 400,000 will ultimately terminate in death. Were we engaged in war with any country, necessitating our putting into the field half a million of soldiers, of which four-fifths of them should perish in a period of two or three years from contagious diseases, the press and the whole people would deplore this loss of life and demand of those in authority that efficient means be taken to prevent so great a calamity.

The number of persons dying in Germany from consumption during the time of the Franco-Prussian War was twice as large as the mortality from the casualties of the war.

We are here to take counsel and formulate such measures as seem best calculated to stay the devastating progress of this "white plague." It is well settled that the disease is propagated by the bacillus tuberculosis, a vegetable germ. In order that this germ may live and flourish, it must find suitable soil upon which to rest and where it can be free from antagonistic elements which would encompass its destruction. The great source of these infective germs undoubtedly is from the expectoration of those persons who are suffering from the disease. Of the probable other sources, meat and dairy products are to be considered. Smith, Koch and some others hold to the opinion that it is not proven that

*Read at the Meeting of the American Congress on Tuberculosis, New York, June 2, 1902.

the bovine bacillus can infect the human; it is to be noticed that they do not say that it is impossible. The fact is well established that man has been accidentally inoculated with bovine tuberculosis bacillus. However, it is properly claimed that this is different from natural infection; it does, however, conclusively demonstrate to my mind that the bovine bacillus is pathogenic to the human. Eminent bacteriologists claim that morphologically they are not the same. Lartigan and Ravenel have both demonstrated that there is a marked difference in the appearance of the tubercle bacilli found in different tubercular affections of the human body. Chaveau, using material from cases of acute miliary tuberculosis in men, prepared in the form of an emulsion and fed to calves, demonstrated that human bacilli tuberculosis were possessed of sufficient virulence to produce the disease in them, and when injected subcutaneously it caused local tubercular disturbance; hence he claims that they are practicaly identical.

Prof. Behring, in his forthcoming book on tuberculosis in cattle, details the result of six years' investigations at Marburg, where he was assisted by Drs. Ruppel and Roemer. He affirms that tuberculosis in man and cattle is propagated by identical bacilli, and that the seeming differences between human and bovine bacilli result from the capacity of the bacilli to accommodate themselves to the organism in which they live. He reaches the conclusion that, chemically and physiologically, tubercle in man and cattle are of the same species. He has successfully infected cattle with virus from human beings, producing fatal tuberculosis. He has discovered a method to render cattle immune against tuberculosis by vaccinating cattle when they are young. This he declares to be his greatest discovery. The method is in use on farms at Marburg.

This leads to the question, What effect environment may have upon this vegetable germ? It is well known that other vegetable seeds germinating under different conditions of air, soil, humidity, heat, in fact very dissimilar environments, produce almost a different variety, or at least a very much changed product. Giving due consideration to this fact, is it not proper conclusion that the observed differences in the bovine and human bacillus may be owing to this change in environment. The difference in virulence has been claimed as another evidence that bovine and human bacilli are distinct varieties and we know that other pathogenic bacilli vary in virulence under practically the same conditions.

Many have claimed that unless the udder of the cow was tuber-

culous, there could not possibly be any danger from the use of the milk and its products. The report made in 1895 on "The Infectiousness of Milk from Tuberculous Cows with no Lesion of the Udder," by Prof. Harold C. Ernst, for the trustees of the Massachusetts Society for Promoting Agriculture, seems to have been overlooked. After giving a detailed report of each examination, he sums up the result as follows:

"There were 121 examinations of milk and cream made, the specimens coming from thirty-six different animals. The bacilli of tuberculosis were found in one or more cover-glasses upon nineteen different occasions.

"These nineteen positive results were obtained from twelve different animals, and the bacilli were found in about equal proportion in the milk and the cream; they were seen more than once in milk from the same cow, at different examinations, six times.

"The bacilli were actually seen, therefore, in specimens from one-third (33 per cent.) of the animals examined.

"That these animals were actually affected with tuberculosis, and that the udder was free from disease, was proven in all possible cases by careful post-mortem examinations. These were conducted upon twenty out of thirty-six animals and the notes of that examination are given."

A series of experiments were made by Dr. Ernst to ascertain if it were possible to communicate tubercular disease by the use of milk from cows affected with tuberculosis, yet having healthy udders. These experiments were conducted under as careful precautions as could be devised, first injecting their milk subcutaneously in other animals; second, by feeding healthy calves positively free from tuberculosis with the milk of cows having the disease, but who had healthy udders. The result of these experiments showed that the disease was communicated both by inoculation and by using the milk as food. In addition to these experiments, reports of clinical cases where the disease had been traced to the use of milk as food were obtained by a circular sent to both physicians and veterinarians, with the result that out of about one thousand replies nearly six per cent. reported having seen cases suspected to have resulted from this cause. These reports were made in 1890, when the fact that the disease was the result of a specific germ was only partially appreciated. It may be said that these clinical reports are of small value, as they are only opinions, not actually verified in a thoroughly scientific way by those reporting them.

As a result of these carefully made tests, Prof. Ernst draws the following conclusions:

"1. While the transmission of tuberculosis by milk is probably not the most important means by which the disease is propagated, it is something to be guarded against most carefully.

"2. The possibility of milk from tuberculous udders containing the infectious element is undeniable.

"3. With the evidence here presented it is equally undeniable that milk from diseased cows with no appreciable lesion of the udder may, and not infrequently does, contain the bacillus of the disease.

"4. Therefore, all such milk should be condemned for food."

It has been asserted that inoculation with bovine bacillus will produce the disease in other animal species. This is corroborated by the reported cases of accidental inoculation of humans by bovine bacillus as reported by Ravenel and others. Again we find the disease communicated by the use of milk containing the bacillus used as food for other species of animals; evidently the experimenter did not feel at liberty to try the experiment of feeding humans with milk containing the germs of tuberculosis, but numerous cases have been reported where persons have used for food milk from cows found to have been affected with these bacilli and have developed tuberculosis, from which they have died.

Dr. Jacobi, of this city, in a recent article calls attention to the following reported cases:

"A boy of five months was perfectly healthy while at the breast of his mother. Then he was fed on raw cow's milk and suffered from emaciation, diarrhœa and anorexia. He died after two months. There was tuberculosis of the intestines and of the mesenteric glands; all other organs were normal. The cow that furnished the milk died suddenly two months afterward. She had pulmonary and pleural tuberculosis; the udders were intact.

"Four children suffering with intestinal tuberculosis had no hereditary predisposition, but had been fed with the raw milk of tuberculous cows.

"In a boarding school thirteen girls contracted tuberculosis; six of them died, several perished of primary intestinal tuberculosis. The milk furnished came from a tuberculous cow with badly infected udders."

He received for examination the thoracic and abdominal viscera of a cow that had enjoyed the reputation of being the finest cow on the farm until she emaciated rapidly and died. Her milk

was selected by the farmer, on account of her splendid condition, for his own infant. This child commenced to pine away and died of miliary cerebral tuberculosis at the age of two and one-half years.

In connection with the experiments of Dr. Ernst, it is interesting to note that of nineteen calves dropped by these tuberculous cows with healthy udders, all being killed within six days after birth, not one showed any evidence of tuberculosis, although a most careful examination was made with special reference to this point. This would seem to be strong evidence that the disease was not transmitted from mother to offspring. The consensus of opinion seems to be that the bacillus of tuberculosis is not transmitted from parent to child as syphilis may be. There are, however, certain inherited conditions which predispose the child to tuberculosis—viz.: nervous temperament, resulting in a relaxed mucous membrane, easily abraded, which affords a particularly good nidus for the bacillus to lodge and develop; want of proper nervous supply to the assimilating organs whereby the blood is impoverished, resulting in sluggish gland secretion, deficient in power to destroy these vegetable germs, when they find their way into the system; narrow chests, which allow the mucosa of the lungs to be more quiet and prevent proper aeration of the blood. Quite as powerful agents are the various acquired conditions which predispose the person to give place to and afford the desired resting place for the seeds of this dread disease.

Among some of the most active predisposing causes are intemperance, insufficient clothing, living in filthy, damp localities, overcrowding, improper or insufficient food; in fact, all the various conditions which tend to reduce the vitality of the individual, thus rendering them more susceptible when the tubercular bacilli come their way. Considering that so many persons are born with or have acquired nervous system and mucous surfaces ready to aid in developing the tubercular bacilli, the presence everywhere of sputum containing myriads of these germs, their presence in various food products, it is well for us to inquire why any have escaped this scourge. First, many of these germs are undoubtedly destroyed by sunlight, while those that survive and find their way by inhalation into the air passages or with food into the alimentary canal are met by secretions of various glands which act as germicides, destroying a large portion of them. In many individuals the remainder do not find a proper lodgment, hence are thrown off without having infected their host. With this brief résumé of

the principal sources by which tuberculosis is communicated to human beings, we come face to face with the problem which we have gathered to consider and which I trust we shall contribute in some degree to solve, to wit: What means shall be adopted to prevent this continual infection of the human family?

First, I believe as all important is the education of the masses in better methods of living, and this must be insisted upon as the foundation upon which to rear the fabric of prevention. They must be made to fully appreciate the necessity of clean, well-ventilated homes, with perfect hygienic surroundings; to have plain, properly cooked food, to avoid all excesses, particularly alcoholic; in fact, to avoid everything that tends to reduce vitality. Especially care must be used by those who contract the disease in disposing of their expectorate matter. We must recognize the fact that in the large towns and cities the dwellers in those portions known as tenement-house districts cannot regulate their surroundings; therefore, influences must be brought to bear upon owners of such property to build and keep them in such sanitary condition as local health authorities may require. If they do not do this, then legal enactments should be secured giving health boards the power to compel compliance with such sanitary requirements. We must insist that all tenement houses shall be so constructed as to give each room plenty of sunshine and fresh air and make sure that they are not overcrowded.

It is our duty to impress the laity with the truth that in damp and low, undrained localities, as well as in crowded cities, the germs of this disease particularly abound.

Second, We believe that having taught the communicability of this "plague" by means of germs found in the secretions of those suffering with it, compulsory notification should be insisted upon. The head of the family, the patient or the medical attendant should be held to as strict accountability to report a case of pulmonary tuberculosis as of any other communicable disease, not for the purpose of quarantine, but that the patient, family and all who may have daily associations with such persons may be able to take such precautions as may be advisable, and that patient and family may receive instruction which will prevent the infected person becoming a source from which others may become affected. The objection made to notification that it will tend to shut the person out from all communication with their fellows and prevent those who are able to aid by remunerative labor from contributing to the support of themselves and others who may be dependent upon

them, is not to be considered. With proper care the patients may remain in their own family without danger of infecting them. You will note that we say "proper care," one object of the notification being to instruct all concerned as to what "proper care" means. If the tuberculous subject is to be cured, it should be understood by every one that an early and accurate diagnosis should be made and the patient given a clear and truthful statement of the condition found, and the further information that under certain conditions, hereafter to be mentioned, a cure is probable. To this end the earnest and faithful co-operation of the patient must be had. Hence he must thoroughly understand what his condition is and what effort he is expected to make in order that he may be cured. Requiring that cases of tuberculosis be reported is not of recent origin. More than one hundred and twenty-five years ago, in the Kingdom of Naples, not only was notification required with severe penalties for neglect so to do, but other requirements to prevent its spread were enforced by equally heavy penalties, as is shown by the following edict of the sovereign of the Kingdom of Naples, issued on the 19th of July, 1772:

"1st. That the physician shall report the consumptive patients when ulceration of the lungs has been established, under penalty, for the first offense, 300 ducats, and, upon repetition, of banishment for ten years.

"2d. That an inventory shall be made by the authorities of the clothing in the patient's room, to be identified after his death, and, if any opposition shall be made, the person doing so, if he belongs to the lower class, shall have three years in the galleys or in prison; if to the nobility, three years in the castle and a penalty of three hundred ducats.

"3d. That the household goods which are not susceptible shall be immediately cleansed, and those that are susceptible shall at once be burned.

"4th. That the authorities themselves shall tear out and replaster the house, alter it from cellar to garret, carry away and burn doors and wooden windows and put in new ones.

"5th. That the poor sick shall at once be removed to a hospital.

"6th. That newly built houses cannot be inhabited before one year from their completion and six months after plastering has been finished and repairing has been done.

"7th. The superintendent of hospitals must keep in separate places clothing and bedding for the use of consumptives.

"Other severe penalties are threatened to those who buy or sell

objects which have been used by consumptives and to servants, members of the family and to any transgressor whomsoever."

What was the apparent result of these stringent regulations at the time they were promulgated? The mortality from tuberculosis in that kingdom was, as nearly as can be determined, ten per one thousand population; in the same territory to-day it is 1.16 per one thousand population, and all Italy has the lowest rate of mortality from this disease of any European country. Keep in mind that when this edict was published it was not known in what way the disease was communicated, but simply that it was contagious. A hundred years later Koch announced the discovery of the tubercular bacillus, giving us an opportunity to prevent its spread by simpler and much less onerous regulations. Shall we, with this example of prevention before us, longer hesitate to make and execute the regulations that our increased knowledge indicates will practically stamp out this pestilence?

We do not apprehend that there would be as much trouble in collecting the reports of these cases as has been feared. A most successful example of locating by reports cases of tuberculosis is found in the April report of Major Gorgas, chief sanitary officer at Havana, who, having succeeded in eradicating yellow fever from that city, has now entered upon a campaign to exterminate tuberculosis. He says: "The great object of the department has been to get the cases of tuberculosis located, and through the various measures used, we have now about 2,500 cases on our lists. These names are carded, with residence and other data, and popular literature sent to them, explaining their disease, its communicability and the best manner of care. I believe that, if the system can be continued for four or five years, tuberculosis can be eradicated as yellow fever has been. We had 900 deaths last year from tuberculosis. Placing the average length of a case of tuberculosis at three years, which is a longer period than is usually given to this disease, we would have 2,700 cases of tuberculosis on hand in this city. As we have at present 2,500 located and carded, it can be seen how thorough and successful our system of reporting has been."

The third preventive which presents itself is of marked importance, possessing dual properties of prevention and cure. Sanatoria for consumptives open to a large class an avenue of escape from certain death; at the same time it prevents the spread to a considerable extent of this dread disease. The first institution of the kind was established in Germany in 1859. At the present

time there are over forty. The first in this country was established by Dr. E. L. Trudeau at Saranac Lake, in the Adirondack Mountains in 1884. Other private sanatoria have been inaugurated from time to time until there are between forty and fifty. Massachusetts was the first to open a public institution to devote to the care of its tubercular citizens. Connecticut has followed; New York City opened one last February; several more States are reported to have provided for similar institutions. Abroad they are moving rapidly in the matter. Sir Edward Cassell has placed at the disposal of the King of England a million dollars for the establishment of a sanatorium for tubercular patients; in order to insure this institution being as perfect as possible, His Majesty has offered three prizes of $2,500, $1,000 and $500, open to men of all nationalities, for the best plans and essays for the construction of a model sanatorium. Our own Government, in 1899, established one for the Army, Navy and Marine Hospital Service at Fort Bayard, New Mexico. By gathering as many as possible into sanatoria for treatment, we prevent infection of other members of their families. Instruct the patient in the best methods to be used to prevent communicating it to others, and having them constantly under the watchful care of an experienced medical man, they are gradually brought from under the cloud of disease into the sunshine of health, when they can return to their former occupations and associates, where they will act as missionaries to instruct others in the way of living to prevent their acquiring the disease. It has been found that the mortality among patients living in the neighborhood of a sanatorium was very much reduced by reason of information imparted by inmates of the sanatoria as to the methods of living and caring for themselves.

The reported result of treatment in the various sanatoria is certainly most wonderful and demands the attention of the profession and public. These reports show that from twenty-five to ninety per cent. of cases are cured. The variation in results depends in a large measure upon the stage of the disease when admitted to the sanatoria. Naturally the earlier the patient is submitted to the treatment after the bacilli has begun its work of destruction, the greater the prospect of permanent cure. Hence the public, as well as the profession, should be impressed with the great importance of an early diagnosis of tuberculosis. In the incipient stage, before any cough or any bacilli are to be found in the secretions expectorated, when the patient seeks a prescription, because, as he says, "he is run down," some degree of anæmia is

present, a slight rise in temperature is noticed, possibly slightly diminished resonance at the apex of lung. X-Ray examinations may help to settle the diagnosis; there remains one more diagnostic test that should be used—"tuberculin." This has never been in general use by the profession after its failure as a therapeutic agent. Its principal use has been by veterinarians for the purpose of diagnosing tuberculosis in bovines; for this purpose it has proved accurate and reliable. A few practitioners have used it for the same purpose in the human, with the result that it has been found safe and accurate. The superintendent of the London County Asylum for the Insane, in England, desirous of determining if certain of his patients had tuberculosis, reports that of fifty-five cases tested by him with tuberculin, characteristic reactions occurred in forty-five and thirty-four of them died. Of this number, autopsies were made in twenty-nine, and active tubercular infection was found in every case. Ten of the fifty-five did not react; of these five are still alive; five have died; on a post-mortem examination of these, no trace of tubercle was found. The consensus of opinion of all who have used it to any considerable extent seems to be that it is accurate as a means of diagnosis, but is entirely harmless, both in the tuberculous and non-tuberculous. The time has passed when the expectant plan of waiting for developments can be pursued; it has always been a plan that led through much suffering to death. With the knowledge heretofore possessed it was all that could be done; now, however, no practitioner can enter the plea that he is doing all that can be done while he is waiting for developments without being charged with being accessory to the death of the patient. With the early diagnosis made, as already pointed out, the person invalided by the death-dealing bacilli is at once placed in position and surrounded by the means to destroy and expel the enemy, with probabilities very largely in favor of ultimate and complete victory. The various private sanatoria not only offer to the wealthy the way of escape from long invalidism, suffering and death, but lead them through pleasant avenues back to health, the pursuit of happiness and useful occupations, surrounded by loving friends who have been anxiously waiting the auspicious result. But what of the bread winner or the youth struggling to win sustenance for a family of dependents or blaze his way from poverty and obscurity to competency and a place among the worthy citizens of the communities?

Shall he remain, as now, doomed to certain but gradual, wasting

decay and death, with the added anguish that he is likely to communicate the same plague to the loved ones for whom he had cherished most lofty ambitions, but who must prematurely fight the battles of life, while with anguish they watch his growing feebleness, as gradually but inevitably he goes down to death as the result of his unassisted warfare with the victorious bacilli of tuberculosis? To this class the State owes a duty that should not longer be delayed. It should provide sanatoria in which at the earliest possible moment the victim of this terrible scourge should be placed and thus given all aid possible to bring him back to his just heritage and all the duties of citizenship. For those who through ignorance or neglect have advanced beyond the curative stage there should be provided homes where they may be cared for at the same time they are prevented from infecting others.

It will be the duty, and undoubtedly the pleasure, of this congress to consider these various questions. We believe that recommendations should be made to State and municipal boards of health, urging them to increase their efforts with a view to educate all classes of our citizens in the knowledge of the infectiousness of this disease and the best means of preventing its spread, including notification of infected persons and the disposal of their secretions; care to be taken in the use of dairy products and beef as food by the public in general.

Further action should be taken setting forth the duty of State and municipal governments to provide sanatoria where the poor can seek cure in the earliest stage of the infection, and hospitals for the care of advanced cases where they can be made comfortable and prevented from conveying the germs to others.

"Let our increasing, earnest prayer
Be, too, for light—for strength to bear
Our portion of the weight of care
That crushes into dumb despair
One-half the human race."

The committee appointed to consider the recommendations contained in the president's address would respectfully report as follows:

We favor the adoption of the recommendation: (1) That the regulation of tenement houses, as regards ventilation, sunshine and the drainage of the soil upon which they are located, is of

much importance in the prevention of tuberculosis, and should be controlled, and by legal enactment if necessary.

(2) That compulsory notification of pulmonary tuberculosis, for educational purposes, is highly desirable, and should be insisted upon.

(3) That tuberculous patients, with proper care, may remain in their family without danger of infecting them, although such patients would undoubtedly have a better chance for cure in a properly conducted sanatorium.

(4) That it is in the highest degree the duty of the State to provide sanatoria, both for the cure and care of her citizens afflicted with tuberculosis.

Your committee takes it for granted that this admirable address will be printed in full in the "Transactions."

C. O. PROBST,
W. H. BRACKEN,
O. B. DOUGLAS.

—By courtesy of the Editor of the Transactions of American Congress of Tuberculosis, 1902.

THE FREQUENCY OF TUBERCULOSIS AMONG ALCOHOLICS.

FELIX IMBAULT draws attention to the importance of the relations between alcoholism and tuberculosis, especially since the recent revival of a vigorous campaign against these two potent causes of disease and social degeneration. According to Landouzy, alcoholism "makes the bed for tuberculosis." It is with a view to get precise conclusions on this point that the present research was carried out—namely, as regards the frequency of tuberculosis among alcoholics. In 1864 Leudit, in a paper presented to the Medical Congress at Lyons, stated that among 121 adult drunkards who had died from various kinds of alcoholic intemperance twenty were found to be tuberculous. He concluded that pulmonary phthisis was less frequent among habitual drunkards than among the habitually sober. Imbert, from a total of 318 male alcoholics examined at the Laennec Hospital, made a special study of 131 and found that fifteen of these, or 11 per cent., were affected with tuberculosis. From a similar special study of sixty-

eight females he found six cases of pulmonary tuberculosis, and one of tuberculosis peritonitis, or 10 per cent. It should be added that Imbert did not search specially or systematically for tuberculosis among these patients. Paul Raymond (1896) made observations at the Hotel Dieu in Paris. Among sixty-two drunkards of excessively intemperate habits and incapable of working he found fourteen cases of pulmonary tuberculosis. These cases were apparently free from a phthisical heredity, and comprised thirty-eight males and twenty-four females. Imbault, from a series of inquiries addressed to medical practitioners in the country and small towns, obtained trustworthy accounts of 248 alcoholics as regards the causes of death; of these, forty-four died of pulmonary tuberculosis, two of tuberculous meningitis, one of general tuberculosis, and one of diabetes and tuberculosis, thus showing forty-nine deaths from tuberculosis, or nineteen and seven-tenths per cent., a proportion that he thinks is apparently very high. Tarbarry, in a recent "These de Paris," from a careful statistical study of the geographical distribution of tuberculosis in France, came to the conclusion that it prevailed most in the districts where most alcohol was consumed, the correspondence being very close in the majority of the departments. In some, however, no parallelism could be traced. It appeared that in Brittany, where phthisis is very prevalent and is on the increase, other factors (hygienic and social) co-operate with alcoholism. From observations collected by Destree and Gallamaertz from the annual official statistics of Italy, and from those of Bertillon for Paris, it appears that "the professions or occupations in which alcoholism is common have in general a high mortality from tuberculosis." This is partly due to alcoholism, but other etiological factors are also present. Among forty-five phthisical patients studied, Imbault found eight to be of temperate habits, the daily consumption of wine not exceeding one and one-half liters per head. The rest were heavy drinkers, but of these seven had ceased to drink heavily after the appearance of phthisical symptoms. All were male adults. The descendants of alcoholic parents show an excessive mortality, in which tuberculosis and meningitis play a most important part, as shown by the observations of Legrain, Grenier and others and confirmed by the author.—"British Medical Journal."

A STUDY OF THE EFFECTS OF ALCOHOL UPON LONGEVITY.

By J. M. FRENCH, M. D., Milford, Mass.

The question as to the effect of the habitual use of alcohol upon the rate of mortality and duration of life is one of the utmost importance. Fortunately, also, it is one upon which enough facts and statistics have been accumulated to justify the formation of definite conclusions.

As a matter of history, however, these conclusions were drawn from observation and experience, long before they were warranted by anything like the present formidable array of statistics. Christopher William Hufeland, in his classic work, "The Art of Prolonging Life," written in the eighteenth century, sums up the opinion of his day in these words: "Lastly, we may place in the class of things that tend in a particular manner to shorten life, all preparations of spirituous liquors, which under whatever name known, are in that respect highly prejudicial. When people drink them, they drink liquid fire. They accelerate vital consumption in a dreadful manner, and make life, in the properest sense, a process of burning." In the light of the most recent investigations of science, after making allowance for a certain extravagance of statement common to the age and subject, in what essential points does this statement need to be modified to-day?

The result of this "accelerated vital consumption" is shown in at least three ways: (1) In a class of diseases produced solely by alcohol, as alcoholic inebriety, dipsomania, delirium tremens, alcoholic insanity, alcoholic epilepsy, alcoholic neuritis; (2) in the increased prevalence of a large class of general and local diseases, of which alcohol is one of the important etiological factors; (3) in the lowered vitality, lessened endurance and diminished reparative power, which is produced by the habitual use of alcohol, and which results in an increased death-rate from all diseases.

A good illustration of the two last-named modes of action is found in the "Twelfth Series of Medical and Surgical Reports of the Boston City Hospital," recently issued. In this volume, Drs. Sears and Larrabee give an analysis of 949 cases of pneumonia treated in that hospital between 1895 and 1900. Of this number, 714 were males and 235 females. The greater number of males is

explained by the more frequent abuse of alcohol by the men, and also by the greater exposure to which they are subject in their occupations. The authors further state that the harmful effects of the abuse of alcohol are shown by the fact that of the total abstainers affected by the disease, only 25 per cent. died, while of the moderate drinkers the death-rate was 26.7 per cent., and of the hard drinkers 45.5 per cent. Our present investigation, however, does not concern itself chiefly with the forms of disease which are caused by alcohol, or the modes in which it produces death. The principal points to be considered are these: Does the habitual use of alcohol shorten life? And if so, to what extent, and how does the amount used affect the result?

For the purposes of our inquiry it is sufficient to divide the entire population into three classes: (1) Total abstainers, who use no alcoholic drinks otherwise than as a medicine; (2) temperate drinkers, who never go beyond Anstie's limit of two ounces of alcohol daily; (3) excessive drinkers, including all regular drinkers, who go beyond Anstie's limit, as well as all occasional, periodical and habitual drunkards.

Those persons whose occupations involve the constant handling of intoxicants, as in the case of individuals engaged in their manufacture or sale, are exposed to especial temptation to their intemperate use; and experience shows that these classes are subject to an abnormally high death-rate. Dr. Farr, the English registrar-general, in his report, speaks thus concerning them:

"The numerous, useful, and, as a body, respectable men, who supply the community with drink, food and entertainment at inns, are shown to suffer more from fatal diseases than the members of almost any other known class. They might themselves institute a strict inquiry into its causes. But there can be little doubt that the deaths will be found to be due to delirium tremens and the many other serious diseases induced or aggravated by excessive drinking. It seems to be well established that drinking small doses of alcoholic liquors, not only spirits, the most fatal of all the poisons, but wine and beer at frequent intervals, without food, is invariably prejudicial. When this is carried on from morning till late hours in the night, few stomachs—few brains—can stand it. The habit of indulgence is a slow suicide. The many deaths of publicans appear to prove this. Other trades indulge in the publican's practice to some extent, and to that extent share the same fate. The dangerous trades are made doubly dangerous by excesses."

Dr. Baer, of Berlin, has made a special study of the mortality and longevity of persons who manufacture and handle beer and other forms of alcoholic liquors, and who are consequently largely exposed to temptation to their use. His study embraces 14,200 males, more than 13,000 of whom were over 25 years of age. He finds that the average expectation of life of persons who handle spirits, at the different ages from 25 years upward, is on an average 4.27 years less than that of temperate persons of the same age.

According to the English census returns, while the average mortality of adult males was about 18.8 per 1,000, that of beer sellers was 20 per 1,000, of wine merchants 23.3 per 1,000, of licensed spirit retailers 23.9 per 1,000, and of inn and hotel keepers 23.8 per 1,000.

In Munich, the average lifetime of persons who pass the twentieth year in good health is 53 years, while the average lifetime of the proprietors of beer saloons is 51.95 years, and of brewers 42.23 years. That of the male proprietors of wine rooms is 49 years and of the female proprietors of the same but 47 years.

Among persons of other occupations, the total abstainers possess a similar advantage over the non-abstainers. In the British army in India, in 1849, the death-rate among total abstainers was 11.1 per 1,000; among temperate drinkers it was 23.1 per 1,000, and among intemperate drinkers it was 44.5 per 1,000. These figures are worthy of note, as indicating the relative power of endurance and vitality among the classes named, all of whom were selected with the greatest care as sound and healthy, and who presumably differed only in their habits in this respect.

The report of the English registrar-general quoted by Hamilton* in his work on "Nervous Diseases," shows the probable duration of life in persons who have lived temperately or intemperately and who have reached certain ages.

That table shows a loss of life from intemperance varying from 28.68 years at 20 years of age to 5.34 years at 60 years of age, and averaging 15.85 years for all ages given.

It is, however, to the records of insurance companies and fraternal benefit societies that we must look for our most convincing statistics in this respect. These institutions are governed by strictly business principles, and not in any measure by sentiment. Hence their conclusions are universally accepted as reliable. As the result of long experience, there is now, so far as I am aware, no standard insurance company in the world which knowingly in-

*"Med. Examiner and Pract.," July, 1901.

sures either habitual drunkards or excessive regular drinkers, while most also reject those persons who are engaged in the retail sale of liquors. Some go still further than this, and while rejecting all habitual drunkards and intemperate drinkers, insure total abstainers and temperate drinkers in separate classes, requiring smaller premiums from the former class; while a few even restrict their membership entirely to total abstainers, finding the cost of insurance to be materially lessened thereby.

The United Kingdom Temperance and General Provident Institution is perhaps the best known of the second class above named. This is a society which for more than thirty years has insured lives in two sections, a general section and a temperance section. Even in the general section no habitual drunkards are taken, but only moderate drinkers, while in the temperance section only total abstainers are insured. Except in the matter of the use of alcoholic beverages, there is no material difference in the qualifications required for membership in the two sections.

The actuary of the society has given reports of both sections in periods of five years for the entire time. A table constructed in accordance with the figures of this report for the thirty years ending with 1895 shows a percentage of actual to expected claims in general sections of 97.31, in the temperance section of 69.63, a percentage in favor of the temperance section of 27.68.

This table shows that there were less than three-fourths as many deaths in proportion in the temperance section as in the general section. Stated in another form, there was one death per year for every 152 moderate drinkers and one for every 201 total abstainers.

The Scepter Life Association of England is another institution having a temperance and a general section. For the ten years, from 1884 to 1893 inclusive, the expected deaths in the general section were 1,030, and the actual were 832, or 80.81 per cent. of the expected; while in the temperance section the expected deaths were 507 and the actual 294, or 57.69 per cent. of the expected, a difference of 23.12 per cent. in favor of the total abstainers.

In the Mutual Life Insurance Company of New York, according to the report of its actuary, covering a long period of years and a large number of persons, the death-rate among those who were total abstainers when they were insured was only 78 per cent. of the maximum, while among the non-abstainers it was 98.8 per cent.—again a difference of 18 per cent. in favor of total abstainers.

Dr. Edward H. Sieveking, in his book, "The Medical Adviser in Life Insurance," estimates that the average expectation of life of a man 20 years of age is, if temperate, 44.2 years; if intemperate, 15.6 years. He adds: "For the purposes of life insurance, the habitual spirit drinker ought to be declined altogether. There is scarcely a degenerative condition of the body that may not result from the abuse, or rather the habitual use, of ardent spirits."

In 1880 a committee was appointed by the British Medical Association, known as the Collective Investigation Committee, one section of which was to report upon the connection of habits of intemperance with longevity. Their investigations included 4,234 deaths, the subjects of which were divided into five classes with reference to the use of intoxicants as follows: (1) Total abstainers, (2) habitually temperate drinkers, (3) careless drinkers, (4) free drinkers, (5) habitual drunkards. They reported the following as the average ages of the different classes at death: Total abstainers—who numbered but 122, or less than 3 per cent. of the whole number—51 years and 22 days; habitually temperate drinkers, 63 years and 13 days; careless drinkers, 59 years and 67 days; free drinkers, 57 years and 59 days; habitual drunkards, 53 years and 3 days.

This report was at once seized upon by parties engaged in the liquor traffic, and made to appear to favor their business. In a circular issued by a Canadian liquor firm, entitled "Alcohol and Old Age—Truth *vs.* Fiction," the conclusion drawn is that "these figures show, singularly enough, that those who reach the shortest age are those who drink no alcohol whatever. After them come the drunkards, who only exceed them by a trifle."

Let us examine the facts for a moment, that we may understand what they really do teach. In the first place, among the four drinking classes the duration of life was found to be in inverse proportion to the amount of liquor drunk, and hence the inference thus far is in the same direction as the majority of the facts examined. As for the class of total abstainers, the number is too small to permit of drawing very reliable conclusions. It is also a well understood fact that the total abstinence movement in England is of comparatively recent growth, and also that it drew its adherents from the young, rather than from the middle aged or the old.

It therefore must necessarily follow that the average age of living total abstainers is considerably less than that of the drinking classes, and that the average age of those who died in any given

period would be less than would be the case with an older class of people. Dr. S. W. Abbott, secretary of the Massachusetts Board of Health, in a letter to the Boston "Transcript," puts the matter very clearly when he says that the fact that the average age of persons dying in an orphan asylum is less than that in an old ladies' home, proves nothing as to the comparative healthfulness of the two institutions, since the one is made up of young persons, the other of old. Dr. Owen, chairman of the committee, himself made this statement concerning the matter at the Congress of Hygiene, held in the year 1891:

"A certain table of figures contained in the report had attracted the eye of newspaper paragraphists and had been quoted and requoted apart from its context in such a manner as to lead the public to believe that, in the view of the author of the report, the longevity of abstainers fell below the longevity, not only of moderate drinkers, but even of the decidedly intemperate.

"No such conclusion was contained in the report, no such conclusion was deducible from the figures in question, and this was plainly stated in the text of the report.

"The conclusions of the report, as far as concerned the health of the public, were the following:

"'1. That habitual indulgence in alcoholic liquors beyond the most moderate amounts has a distinct tendency to shorten life, the average shortening being roughly proportioned to the degree of indulgence.

"'2. That, of men who have passed the age of twenty-five, the strictly temperate, on the average, live at least ten years longer than those who become decidedly intemperate. We have not in these returns the means of coming to any conclusion as to the relative duration of life of total abstainers and habitual temperate drinkers of alcoholic liquors.'"

This frank statement ought to settle the meaning of the report.

In view of all the facts given, the following conclusions seem warranted:

1. The habitual use of alcohol shortens life.

2. Speaking broadly, the degree of shortening is proportioned to the amount used and to the duration of its use.

3. From the point of view of longevity, the abstainer is not simply the one who does not at the present time use alcoholic drinks, but rather the one who has never used them. The reformed drunkard may be a total abstainer, but he cannot on that account be considered a good risk.—"Merck's Archives," April, 1902.

COSMOPOLITAN HEALTH STUDIES.*

By F. L. Oswald, M. D.

XII.—ARABIA.

The great peninsula that forms a connecting link between the African and Asiatic tropics is a land of moderately fertile plateaux, surrounded by sand wastes, some of them as unproductive as the Central Sahara, but those deserts have protected the last unconquered remnants of a race which, for a long series of centuries, disputed the supremacy of the aggressive Caucasians.

For more than a thousand years the Semites held the championship of our planet in war, in science, in commerce and agriculture. The sanitarian precepts of their creeds (primitive forms as well as Mosaism and Islam) seemed to preclude the danger of degeneration.

How did their opponents contrive to prevail? Pork, alcohol and ignorance against frugality, temperance and science? Burkhardt's plausible theory is that the accident of a climatic advantage turned the scale—an advantage by no means recognized as such by the half savage tribes whom defeat obliged to colonize the wilderness of the wintry latitudes. From the over-populated regions of Central Asia the tide of westward migration beat against the bulwarks of the Semitic empires, but was deflected to the north—a blessing in disguise to home seekers who would have greatly preferred the fertile plains of Mesopotamia.

Frost, unmodified by coal-stoves, stunted the minds of the shaggy Northlanders, but developed their muscle, and in the rough-and-tumble fight of the international arena, muscle eventually prevailed.

"The world belongs to the strong," and from that point of view weakness—even comparative weakness—may be a crime, implying risks which the keen-eyed Semites ought to have recognized; but in all other respects the race that produced Solomon, Hannibal and Haroun-al-Rashid deserved to win.

Nor has Fate rejected all their appeals against the doom of the conquered. Their mental and physical health-worship has saved them from the abyss of absolute annihilation.

*Continued from page 212.

The Arabs and their North African kinsmen have solved the problem of survival under difficulties that would have proved fatal to any other race. They have done more—they have maintained themselves above the level of barbarism.

"Illiteracy is a disgrace from which every descendant of Shem fights his way upward to the limit of his resources," said the traveller Vambery, and at the camp-fires of the Soudanese caravans problems of hygiene and natural history are discussed as often as religious casuistics.

And, in regard to what Winwood Reade calls the "physical aristocracy of the human species," the poor Bedouin still ranks high above the average of his old-world contemporaries. He observes the health laws of his creed, together with all sorts of sanitary maxims that have been handed down from the pre-Mohammedan era of his native land. Money would not tempt him to sacrifice his daughter to a dissolute Giaour, even if that Giaour should contrive to forge a recommendation from the Sheik-ul-Islam. Consanguinous marriages are sternly discouraged by the patriarchs of the desert tribes, and a clean genealogical record is prized by the poor and rich alike. In Caucasia indifference on that point has reached a degree that cannot be wholly explained on the theory of democratic notions of equality and freedom.

"What age did your great grandfather reach?" an emir asked a travelling companion of the philosopher Buckle. "Damned if I know," was the reply that made the interrogator stare with amazement.

"What occupation did he follow?"

"Can't tell."

"He was a native of Great Britain, wasn't he?"

"Perhaps he was, but I don't know; never heard him mentioned."

Ninety-nine of a hundred Americans would answer the same question with words to the same effect, and perhaps even marvel at the caprice of the inquirer, who might as well have asked them to specify the name and breed of St. Peter's rooster.

Then ask an Arab—not a Koreishite of the green-turban tribe, but a poor Soudanese camel-driver, and his employer must have picked him up in a foundling asylum, if he cannot trace back his paternal line of descent for a dozen generations.

In the storm on the entrenchments of Tlemken an Arab sergeant saved the life of General Dupin, who soon after took him aside and asked him to request a favor—"anything but your discharge," he

added with a smile, "because we cannot spare such brave men as you."

The answer surprised him: "Don't promote me," said the old trooper, "because I don't know French enough to do any book-keeping; but if you want to be generous, excuse me from having to sleep in the men's quarters; give me leave to rig up a tent of my own."

"Why, what good would that do you?"

"It would keep me from worrying; I wouldn't feel ashamed of myself to see bad drink swilled right under my nose and being obliged to hold my tongue."

That same sort of sanitary self-respect prevents the sons of the desert from sharing the pot-luck of the wealthy traveller who has hired their services in the capacity of a guard or guide. They may risk their lives in his defense, for a few dimes a week, but they will not drink out of his cup nor accept a present of a garment that has been worn by a misbeliever.

The fruit of the date-palm is the Arab staff of life; barley or dourrha bread next, and a sort of leathery, weather-proof cheese by way of tidbit. Fleshpots are rare, but their absence has nothing to do with a dietetic prejudice. Where luck has favored them with a bonanza of venison, Bedouins can be seen gorging themselves without an apparent misgiving of injurious consequences, and their chiefs rarely let poverty prevent them from treating an honored guest to a bit of mutton.

In rural districts it is the same with the coffee habit. A highland sheik, who observes extra fast days, to get a decent pretext for economizing his scant store of provisions, will keep a gourdful of coffee beans on hand, as a German country baron in reduced circumstances might hide an hereditary bottle of good wine; but the staple drinks of inland Araby are camel's milk or water. Owing to the scarcity of fuel, a batch of barley bread is often kept on the shelf for weeks, and the labor of mastication explains the splendid teeth that distinguish the southern Semites above all other inhabitants of our latter-day world.

"What, you can't eat our bread, and yet came to take it by force?" an Arabian chief asked a Turkish officer who had been captured in the campaign of Ibrahim Pasha; and the Turk hid his face in his shawl.

Bread of that sort ought to be imported as a dentifrice and antidote to our teeth-destroying pap-diet, but it is probable that a

plurality of Caucasian city dwellers might just as well try to masticate date-stones, which Prof. Gerstaecker's Arab guide was able to pulverize with his teeth. Nut-crackers must be quite superfluous to champions of that sort.

Keenness of the five senses is not a bad test of perfect health, and in that respect the native Arabs outrank even our Redskins. Constant practice has endowed their eyes with almost telescopic power, and they can distinguish the waters of a dozen different wells from samples which a foreigner would pronounce identical.

"There have been sheep here, within the last few days," said General Canrobert's Arab scout in a rock-labyrinth of the Algerian Atlas, where the French soldiers could notice only a faint scent of aromatic herbs. "Yes, come here," said he, sniffing about a particular cliff, "you can tell it quite plainly here." But they couldn't, and were beginning to suspect a mystification, when a clatter in a ravine of a neighboring ridge betrayed the flight of a troop of half-wild Berber sheep.

The liberal wages of the Suez syndicate attracted thousands of Arabs, who worked like heroes in a temperature far above the hundred-mark of the Fahrenheit scale, but were afraid to approach the seaport, on account of odors that affected them with nausea and the dread of disease. The French engineers, too, could notice a deviation from the standards of atmospheric purity, in that case, but agreed that the harbor-slums of Marseilles were incomparably much worse—"a difference as that between bilge-water and cesspool water," as a correspondent of a French feuilleton expressed it.

What would Puritans of that class have done in a Muskovite tannery town, or in the neighborhood of a Mexican beef-packery, where offal heaps are cleaned up only by semi-annual rainstorms?

The disadvantages of that sensitiveness are, however, offset by the delight in perfumes. The passion for fragrant herbs manifests itself in the suburbs of every Arabian city—nay, in the *yermaks,* or courtyard enclosures, of wealthy burghers who devote a considerable part of their revenues to the luxury of a fountain with a *parterre* of roses and jessamines. In stress of circumstances, travelling Arabs content themselves with burning aromatic powders, and it is an interesting question if that predilection may not be founded on a sanitary instinct. Granted that, caeteris paribus, palatable food is more wholesome than repulsive refuse, is there a reason to doubt that the preferences of the olfactory nerves serve a similar purpose? The delight in pleasant odors, like the dread of fetor, must have been developed by a process of natural selec-

tion, and, for all we can tell, perfumes may have a hygienic, perhaps antiseptic, value.

The poor caravan travellers envy the favorites of fortune the privilege of drinking pure cold water, every day in the year, and the favorite wife of the Caliph Almumin is said to have consulted a saint on the question of the most acceptable gift that might induce Heaven to grant her recovery from a perilous disorder.

"Hire laborers enough to dig wells at two-league intervals, all along the pilgrim road from the isthmus to Mecca," said the holy man after some reflection.

Those wells still exist, but go dry oftener than formerly; tree destruction has made terrible progress throughout the northern and central provinces of the peninsula. Only in the south, in the high mountain ranges of Yemen, a few traces of woodlands have weathered the havoc of ages, and justify the mistake of the Latin geographers who confounded a synonym of *felix* with an Arab word that really means "right-side land"—the region to the right of Mecca. But on the left side, too, tolerably prosperous and civilized tribes hold their own, like the Turkoman, in a hard struggle against "war, wolves and water-famine"—aggression of would-be conquerors and zoological nuisances, from orchard-raiding baboons to grass-devouring locust swarms.

It is hardly fair to judge the capacities of our rival race from their achievements under such difficulties; the frequency of droughts cannot fail to stunt them, as it stunts their shrubs and trees. In the park-like terrace lands of Abyssinia their kinsmen got a better chance of development, and there Sir Samuel Baker encountered his superiors in woodcraft; hunters like Taher Sheriff, who would gallop a pony into the midst of an elephant herd, then dismount and, sword in hand, make a dash for the biggest tusker, hamstring him at a single blow and remount in time to escape the rush of his infuriated companions.

No graduate of the Olympian arena could have surpassed the exploits of these sword-hunters, as they call themselves in distinction from their pit-digging and arrow-poisoning neighbors, and the mental capacities of their race were as strikingly illustrated in Spain, where they evolved high schools, observatories, botanic gardens, chambers of commerce, city parks, magnificent public baths and aqueducts, free public libraries, and what not, and all in the midst of desperate defensive wars against superstition-crazed foes, backed by the power of all Northern Europe.

That garden of the Mediterranean is a desert now, and within

the last five hundred years a hundred million Semites have perished in battle, but the few survivors decline every compromise and even day-dream of a time when Allah will redress their wrongs and restore them the heritage of their heroic fathers.

In Africa their missionaries work indefatigably and with a success unapproached by the propagandists of any other creed, or rivaled by the Mormons alone, thanks to their equally well-wielded weapon of teetotalism.

But a reformer of Arabia itself went further, and ventured a declaration of war against the tobacco habit. The anti-smoke gospel of Abd-el-Wahab was preached with a fervor that bore down all resistance and actually resulted in the capture and expurgation of Mecca. The champions of Nicotine captured a turbaned Hudibras, who roamed the country, threatening to strangle smokers with the strings of their own pipes, and, in retaliation, the Antis did not hesitate to collar the holy stone of the Kaaba, the palladium of the Mohammedan universe.

These ultras of total abstinence have their strongholds in the rocky central plateaux of the peninsula, and call attention to the fact that cholera epidemics have spared their reservation again and again.

Their campaigns have depopulated a belt of borderlands that save them the expense of a quarantine, while their opponents in the coast plains have to rely on the precarious expedient of banishing foreigners to pariah suburbs. There seems no doubt that epidemics of all sorts are imported by pilgrim swarms of miscellaneous Orientals straight from the plague centres of Hindustan, many of them, and it is probable enough that the natives of Araby, if left strictly alone, would enjoy sanitary immunities exceeding those of Meran in the Tyrol, where measles are admitted to have originated, in spite of all climatic advantages. Syphilis has got its clutch on the seaports of Yemen (the happy South province); but Arabian chroniclers record the time when that previously unknown disorder was imported from the furthest east—probably from Southern China—where Arabian traders now and then procured a cargo of silk.

Its ravages can be imagined if the Yemen hospital doctors adopted the plan of Avicenna, who proposes to stamp out venereal diseases by means of fasting cures and prayer. Smallpox was long fought with "frankincense, pitch-smoke and bitter herbs," fumigation in short, but without saving the Caliph Walid from the doom of his vizier, who had got so disfigured by pox pits that he

dreaded to show himself in public. His imperial master was metamorphosed in a manner that provoked him to smash a costly looking glass and to issue a formal declaration of war against a disorder that had ventured to attack a successor of the prophet (Weil's "History of the Caliphs, Vol. II, p. 272), but all the medicine men of his empire could think of was a more effectual system of isolation, and only a hundred years later a physician of Bagdad announced the discovery of a method for limiting smallpox eruptions to certain parts of the patient's body—the chest, for instance, or the upper arms.

Arab slave traders, however, have solved the more knotty problem of originating a smallpox epidemic, if we shall credit an account of the traveller Burton, who saw a gang of unmerciful manhunters chased, in their turn, by a detachment of Egyptian troops. They fled to the Abyssinian highlands, and their ship, left to its fate, rocked at anchor in the broiling sun, till death and filth developed smallpox in so virulent a form that it could be plainly smelled on the opposite bank of the Nile.

"Be the guilt of that horror on the head of the Giaours and their Egypt flunkeys," was the prayer of the fugitive slave dealers.

The mortality rate of the Arabian peninsula, as a whole, is unexpectedly low, but so is the rate of increase. The prevalence of polygamy has been abated by hard times, and, just as in tax-burdened France, families of numerous children have become undesired, and consequently infrequent.

(*To be continued.*)

COFFEE AND TEA AS PRECIPITANTS FOR POISONS.

By J. W. ENGLAND.

Dr. Torald Sollmann, Assistant Professor of Pharmacology of the Western Reserve University of Ohio, reports some interesting experiments upon "Coffee and Tea as Precipitants for Poisons." ("The Journal of Medical Research," January, 1902, 43-53.) After referring to the generally accepted opinion that strong tea and black coffee are chemical antidotes against alkaloids and metallic poisons, he states that this belief appears to be based solely on clinical experience and upon the fact that both beverages contain some form of tannin, gallotannic acid being known to precipitate

both of the above classes of poisons. The clinical results might be due to the physiological effects of the caffeine rather than the chemical action of the tannin, as in the use of coffee in opium poisoning. That the tannin of both tea and coffee should be gallotannic acid seems improbable in the absence of experimental support of this statement (which, apparently, has not been reported), since the different tannins are known to differ widely in composition and reactions. Ordinary tannin—gallotannic acid—is an anhydride of digallic acid.

Tea-tannin may be (Dragendorff, "Pflanzanalyse," 1882, s. 166) practically identical with gallotannic acid, or with quercotannic acid (Rocheleder quoted in "Beilstein," 1897, Vol. 3, p. 688), or be an entirely different substance (Stenhase, "American Journal of Pharmacy," 1862, p. 254).

Coffee-tannin is radically different from tea-tannin, being a diglycosyl ether, of 3.4 cinnamic acid. The very markedly less astringency of coffee as compared with tea would indicate that the tannins of these two substances were not identical, especially when it is noted that unroasted coffee contains, according to Spencer (G. L. Spencer, "Tea, Coffee and Cocoa Preparations," U. S. Department of Agriculture, Bulletin 13, 1892), from 5.8 to 33.8 per cent. of tannin, while tea contains only from 4.8 to 15.4 per cent., the latter being a very rare figure. Notwithstanding this smaller content in tannin, tea is in practice usually preferred to coffee as a chemical antidote.*

In order to determine the chemical reaction of tea and coffee with different alkaloids and metals, and to ascertain how far the general statement of text-books that tannin precipitates "most alkaloids and metals" is true, Dr. Sollmann carried out the following experiments:

"A decoction of coffee was prepared by boiling for forty-five minutes ground roasted coffee with ten parts of water, replacing from time to time the liquid lost by evaporation, filtering whilst hot, and percolating through the marc and filter enough hot water to make ten parts. A decoction of black 'English Breakfast' tea was made in a precisely similar manner. Both liquids were somewhat acid to litmus. The coffee became somewhat turbid on cool-

*May there not be a larger percentage of tannin in unroasted coffee than in roasted? In other words, do not the destructive changes that take place in green coffee during the process of roasting destroy some of the tannin? As is well known, isolated tannin is markedly affected by heat—swelling, blackening and igniting, according to temperature (U.S.D., 1899, 100)—and green coffee on being roasted is heated to a temperature that is destructive of some of its constituents, including, possibly, some of its tannin.—J. W. E.

ing. The tea showed a very pronounced diffuse precipitate, and became almost opaque in thick layers. This could not be removed by filtration through paper. It could be made to disappear by heating or by the addition of alcohol. On account of this turbidity the reactions were always compared with corresponding dilutions of the decoctions with water. Neither decoction gave any precipitate with dilute hydrochloric acid, nor with Mayer's reagent, in the proportions which were used. The tests were made by adding definite proportions of the decoctions to solutions of the substances to be investigated, and noting the resulting phenomena at once, and after standing. If a turbidity or precipitate occurred, a portion of the unfiltered liquid, in the case of alkaloids, was mixed with about one-fifth volume of 5 per cent. hydrochloric acid, and with one volume of alcohol, to test the solubility. Another portion of the liquid was filtered, and a part of the filtrate was put with more of the decoction. If no further precipitate occurred, a few drops of Mayer's reagent were added. In the case of metallic salts the decoction was added until a further portion ceased to affect the filtrate, and the latter was then tested for the metals. The proportions usually employed for the alkaloids were 2 c.c. of 1 : 100 aqueous solution of the alkaloid* to 1 c.c. of the decoction (expressed in the table as 1 : 150—$3\frac{1}{3}$ per cent.) or 5 c.c. each of 1 : 1000 solution of alkaloid, and of the decoction (expressed as 1 : 2000—5 per cent.)."

Details of the experiments are then given in extenso, after which the conclusions are stated as follows:

I.—*Precipitation of Alkaloids.*—Atropine, coniine, morphine and pyridine are not precipitated even in fairly strong solution by coffee. Tea precipitates them from strong, but not from weak, solutions.

Aconitine, brucine, cocaine, lobeline, nicotine and pilocarpine, in weak solution, are only sparingly precipitated by tea; coffee does not affect them even when they are in concentrated solutions.

Apomorphine, the cinchona alkaloids, hydrastinine, strychnine, and veratrine in dilute solutions are precipitated efficiently by either coffee or tea, the latter being generally more efficient, except perhaps for veratrine and quinine.

The precipitation is incomplete with all alkaloids except apomorphine. However, the quantity of unprecipitable alkaloids is quite small in those which are said to precipitate from "dilute solu-

*Or one of its salts, brought into solution if necessary by the addition of a few drops of 5 per cent. H_2SO_4.

tion," since most of the alkaloid is removed from 1 : 2000 solutions.

The precipitates are somewhat soluble in dilute HCl, very readily soluble in dilute alcohol. The administration of the latter must therefore be avoided if these beverages (or tannin) are used as chemical antidotes in alkaloidal poisoning. Since the precipitates are not quite insoluble in water, as little liquid as possible should be given. The quantities of the decoctions should not be less than 3 c.c. of a well-boiled 10 per cent. decoction for each milligramme of alkaloid.

II.—*Metallic Salts.**—Tea is also the more efficient precipitant of metals, but the difference is not nearly so striking as with alkaloids. Both beverages are inefficient against arsenious acid or tartar emetic. They precipitate to a large extent, but not quite completely, the salts of cobalt, copper, nickle, uranium and zinc, and would be useful antidotes against the toxic members of this list. They precipitate practically completely the salts of aluminum, lead and silver. Mercury is partly precipitated by tea, but not by coffee, so that the former would be an antidote, the latter not.

III.—*Proteids (Eggwhite, Albumose and Gelatine).*—These differentiate very sharply between the two tannins; whereas tea produces large precipitates, coffee leaves them unaffected, or renders them slightly turbid at most. This serves to explain the less astringent taste of coffee and its less deleterious effect upon digestion.

The reactions of tea bear a very close resemblance to those of gallotannic and quercotannic acid. The precipitant effects of caffeontannic acid are weaker, but occur along the same lines. The greatest differences are seen in their action on proteids and on certain alkaloids, whereas other alkaloids and most metallic salts are precipitated almost equally well by both. An exception is formed by mercuric chloride, which is partly precipitated by tea, not at all by coffee.—"American Journal of Pharmacy," June, 1902.

*The salts used were: Arsenious acid, tartar emetic, cobalt chloride, cupric sulphate, nickle sulphate, uranium acetate, zinc sulphate, ferric chloride, lead nitrate, silver nitrate, aluminum chloride and mercuric chloride.

NEW METHOD OF COOKING CEREALS.

The discovery of a dry process of cooking starchy products, such as grains, which hitherto have required large quantities of water for cooking, has been announced by Dr. A. P. Anderson, curator of the Columbia University herbarium. Dr. Anderson says in a paper on the subject, quoted in the New York "Sun" (May 10th):

"To prepare starches for human foods it is essential that the granules should be broken up, in order to be more easily acted upon by the different digestive enzymes. The salivary enzymes are especially active in converting starch into sugar, but raw starch, in which the granules are intact, is very slowly acted upon and is not changed even after hours of contact with the saliva.

"On the other hand, when the starch granules are previously broken up by heating in water the enzymotic action is almost instantaneous, and the starch is converted into sugar, in which form it is soluble and easily assimilated. . . .

"In the course of my experience and study of the theoretical structure of the starch granule I have discovered a method by means of which starch granules of all kinds, as well as starchy seeds and products, can be expanded and broken up without the use of water from the outside, which is customary in the conversion of starches into pastes in the ordinary cooking processes with water.

"Instead of adding water, I am able to effect the complete swelling of the starch granule by means of dry heat. This I do by subjecting the starch granules, grain or starchy mass to a rapid heat in a saturated atmosphere.

"At the end of the process I find the starch granules broken up into an innumerable number of particles or fragments. The resulting products after the expansion are drier than before, on account of the loss of water which escapes at the time of the expansion.

"I find that I can in this way swell or expand any starchy product, and especially the cereal grains. When the grains are swelled the resulting products are from four to sixteen times greater in volume than the original kernel. The expanded kernels are only enlarged, otherwise exact copies of the original.

"At the time of the expansion they become white, porous and bread-like, and on account of the rapid heating and comparatively

low temperature the greater proportion of the starch remains unchanged, excepting in that it is broken up into fragments as before explained, not being altered to any extent chemically. Some dextrin is formed, especially when the heating is prolonged and at higher temperatures.

"When air-dry powdered starches, like corn starch, tapioca flour, sago flour or starchy preparations like pearl sago and pearl tapioca, are treated, the resulting swelled dry white masses become enlarged copies of the original, which increases in volume from six to nine times. When pure starches are thus treated and expanded, and the resulting dry products afterward placed in water, they go into suspension, forming a starch paste similar in every respect to one formed by boiling starch in water.

"The only difference between starch paste or starchy food products prepared by the ordinary methods of boiling or cooking with water and the dry method of expanding them is that the resulting products expanded when dry can be kept indefinitely in their dry condition, while the products prepared with water easily spoil and ferment when not afterward sterilized and kept in closed vessels."

It is stated by the writer of the account in the "Sun" that at the scientific meeting at which Dr. Anderson's paper was read, specimens of the products treated by his process, including wheat, rice, buckwheat, pearl barley, pearl sago and tapioca, were presented for inspection and tasting. All these products, while greatly expanded, retained their original shape, and all quickly dissolved in the mouth. Pearl sago, especially, simply melted away. Wheat and buckwheat gave a little opportunity for mastication, and had a pleasing flavor. Says the writer:

"A suggestion was made by one of Dr. Anderson's hearers that the discovery was likely to go a long way toward solving the vexed question of concentrated food in emergency rations for soldiers. It is said that the products could be put upon the market cheaply, the expense of the process being less than that of the ordinary methods of cooking."

A MOUSE IN THE TELESCOPE.

A story is told of an amateur astronomer who proudly imagined that he had discovered an elephant in the moon. Subsequently, however, he was no doubt somewhat disgusted when the big animal was found to be nothing more than a mouse which had accidentally found its way into his telescope.

PURE-FOOD LAWS IN MEXICO.

Consul W. W. Canada transmits from Vera Cruz, April 8, 1902, a newspaper clipping quoting a decree of the Mexican Government in regard to the pure-food supply, which is made a part of the sanitary code. The decree reads:

Article 1. Milk, of whatever animal it may be, must always be sold without the addition of water or any other substance, and when it is not from the cow the animal from which it has been drawn must be mentioned.

Art. 2. Milk from which the butter-producing component has been removed, wholly or in part, will be sold under the name of skimmed milk and must be dispensed at special stands at which no other kind of milk is sold. The sale of the product in question must take place according to the rules laid down in the sanitary code.

Art. 3. For the purposes of the foregoing article, milk shall be considered as skimmed when it contains less than 30 grammes (15.4 grains) of butter-making components per liter (1.05 quarts).

Art. 4. Under the name of milk cream, the cream of milk, without the addition of any other substance, shall be sold.

Art. 5. Under the name of sterilized milk shall be sold milk for the preservation of which provision has been made by the action of heat, and in no case by the addition of an antiseptic substance.

Art. 6. The product known as condensed milk shall never contain antiseptics or any other substance that might be prejudicial to health, and shall always be sold in closed receptacles.

Art. 7. The sale of milk from animals attacked by contagious or infectious diseases is prohibited, special precaution being taken against the following: Tuberculosis, aphthous fever, carbonic fever, symptomatic carbon, pyæmia, septicæmia, diphtheria, acute and chronic mammitis, and in particular tuberculous and icteritious maladies.

Art. 8. The only substance sold under the name of butter shall be the fat extracted from pure milk drawn from healthy animals and prepared in such manner that it shall not contain more than 5 per cent. of water and at the most 2.5 per cent. of the other components of milk. Nevertheless, the addition of salt (chloride of sodium), when the article is sold as salted butter, and of some inoffensive coloring matter shall be permitted.

Art. 9. Other alimentary fats which, owing to their resemblance to butter, have been palmed off in its stead must be sold under the name of margarin or some other name indicating their source and composition, and subject to the rules laid down in the sanitary code for their manufacture and sale.

Art. 10. The receptacles containing these products and the wrappings in which they are delivered to the purchaser shall be inscribed with the name under which they are sold, in legible characters of at least 1 centimetre (0.39 inch) in height.

Art. 11. Cheese, which is the product of the precipitation of casein from the milk of various animals and of subsequent maturation, shall always be sold in a good state of preservation and shall answer in character to the name under which it is sold; and only the addition of the substances that are tolerated in the case of butter shall be allowed.

Art. 12. In the preparation of bread and buns from wheat, only the pure flour of that cereal, possessing, in addition, the following qualifications, shall be employed:

I. That the flour shall have been prepared from grain from which earthy matter, the grains of other plants and the grains of the wheat itself when damaged or spoilt have been removed.

II. That it shall not contain excessive moisture, so that at a temperature of 100° C. it shall not lose more than 18 per cent. of its weight.

III. That it shall not contain foreign mineral substances, the maximum of ashes to be contained being 1 per cent.

IV. That it contain at least 8.5 per cent. of dry gluten.

Art. 13. The use of any other mineral substance except salt (sodium chloride) in the making of bread and buns is forbidden.

Art. 14. In the preparation of provisions containing lard, the pure lard of hogs shall be employed.

Art. 15. Bread and buns shall never be colored yellow with any other matter except the egg, and if advertised to contain that article of food, they must really contain same.

ONE-SIDED BREATHING was recently recommended by a quack in Koenigsberg, Germany, to patients suffering from tuberculosis, so as to give rest to the lung involved. This, he gravely announced, could be readily accomplished by stopping with the finger the nostril on the side affected, a patient whose right lung was affected breathing through his left nostril, etc.

"LOCUSTS AND WILD HONEY."

If a little knowledge be a dangerous thing, a total absence of it is fatal, particularly when it is associated with an excess of sentiment that is religious in its conception and fanatic in its execution, and a more striking example of the union of the two than is offered in the account of the locust poisoning in the wilds of Virginia is difficult to imagine. It would seem from the local reports that the daughters of Eloi and the widows of Asher, together with several other colored societies of an equally orthodox and biblical nomenclature, had united in a love feast with a bush meeting attachment, the principal attraction of which was to be a literal following out of the Scriptures, inasmuch as, like St. John in the wilderness, their "meat" was to be "locusts and wild honey."

As to the success of the meeting, taken from a revival standpoint, little mention is made beyond the fact that the leading brother preached a most eloquent discourse from the text "to eat the locust after its kind" (Lev. xi, 22), but the real manufacture of history seems to have begun on the following morning, when all who had partaken of the piéce de résistance found themselves seized with a most acute malady, accompanied by cramps and spasmodic pains, which evidently belonged to the same category as that described by the late Colonel Starbottle as "cholera-ic' in its nature (for the daughters of Eloi were in cloistered seclusion, "and the widows of Asher were loud in their wail").

That such an epidemic as this should attack such a camp as that, where the godliness, even if exalted, was next to anything but cleanliness, is not surprising, particularly when we remember that all their food that was not in the frying-pan was literally out of it and in the fire, and that saleratus with its melancholy had long marked them for her own, so that under ordinary circumstances perhaps but little notice would have been paid to it, but in this particular instance different interests were at stake; the religious element desiring that some cause besides divine wrath should become visible in what might otherwise be taken as a visitation to the faithful, while the farmers and upper classes were in alarm, lest their stock which had been jubilantly and economically fattening

on the myriads of insects might sicken and die. A thorough investigation was therefore started in the interests of both parties.

It was seen by the more intelligent from the beginning that the locust itself had, in all probability, but little to do with the epidemic, for it has been known from the earliest days of historians and travellers that they have been a staple article of consumption in many countries, and, though it is difficult to understand how any race of people could be so destitute of ordinary food and the means of obtaining it as to resort to an insect-diet, yet the fact remains that many nations for many years have subsisted on them. Thus we have learned that in Persia, Arabia, Syria, Egypt, Bombay and even in some of the southern countries of Europe locusts have been, and still are, eaten, and that the different ways of preparing them for the table are as varied as the localities they infest.

In some places they are fried until their wings drop off, and are in that state sold in the markets, to be afterward eaten with rice and dates. In others they are broiled or baked in earthen pans, and are often found salted in Arabian shows. In Morocco they are ground in hand mills and made into cakes, while the Hottentots make a brown soup of them, of which they are said to be extravagantly fond. When fried, they turn a reddish color like shrimps, and are supposed to resemble crayfish in taste, but while wholesome and tolerably palatable, they are not very nutritious, nor are they capable, unaided, of sustaining the vigor of the constitution, as the nations that feed on them habitually, as did the Acridophagi, or locust eaters of Ethiopia, become at last very thin, weak and indolent. Still at no time does there appear to have been any record of an acute outbreak of this nature occasioned by their use.

As to the stock owners and farmers, it seems, although the Calmucks do not eat the locusts, that they consider the antelopes, sheep and other animals that have fattened on them a particular delicacy and regard them as we do the acorn-fed hogs of Virginia, the rice-birds of the Carolinas, and that pungent product of the Spanish fly, the "pepper bot" of Louisiana.

All this would seem to remove the locust from being a *particeps criminis* of the village tragedy, a verdict fully confirmed by the discovery that the locusts had been boiled alive in an exceedingly dirty and crowded metal caldron, so that the trouble was brewed rather from the sounding trap of the encompassing kettle than from the tinkling cymbals of its contents.—"Medical News," July 12, 1902.

BATHING ESTABLISHMENTS IN LYONS.

The following facts are submitted in answer to several letters requesting information about baths for the people in France:

In Lyons there are many bathing establishments on the Rhone and Saône, in which one can take a good swim for 6 cents; 4 cents more is charged for bathing drawers and towels. Ordinary bath houses, such as are found all over the civilized world, are common in Lyons, where a good bath can be had for 6 cents without and 8 cents with towels and soap.

In 1898 a concession was given to a Lille company to build small bath houses on the public squares of this city, eight of which are now doing business here. They are of porcelain, each 20 feet long by 14½ feet wide and 12 feet high. Inside are six stalls, each of which is divided into two compartments by a waterproof curtain, on one side of which is a dressing-room containing a mirror, comb and brush, clothes rack, chair and spittoon. The other side is provided with an electric bell, soap and washstand, with warm and cold water and all the appointments necessary for a good shower bath, the water falling from above or from the sides, according to the fancy of the bather. The limit of hot water given to each bather is a little over 10 gallons; no limit is fixed to the use of cold water. The furniture of the apartment also includes an iron basin for a foot-bath. In winter these little stalls are never allowed to become cold, and in summer they never become very warm. Under the bath house is a cellar 6 or 7 feet deep, in which are the coal, the boiler, a continuously heated thermosiphon and the appliances for heating and driving the water.

The price of a shower bath in these little concerns is fixed, in the act authorizing them, at 3 cents, towels and soap included. In no case is the woman in charge permitted to ask more or to accept a gratuity. This last regulation is never honored by observance when occasion is offered for its transgression. The towels must be 80 centimetres long and 50 centimetres wide (31½ by 19¾ inches). The rules require the disinfection of every towel after it has once been used.

The company that manages these bath houses receives from the city of Lyons a subsidy of 20,000 francs ($3,860) per year and the free use of the ground for thirty years, at the end of which time the establishments are to revert to the municipality; but if, at the

end of ten years, the number of persons using the baths in the city is less than 200 per day, the experiment will be considered a failure and the city will have the right to cancel the contract, first giving the company six months' notice.

JOHN C. COVERT, Consul.

LYONS, April 17, 1902.

THE VILLAGE CHURCH AND CHURCHYARDS.

By HARVEY B. BASHORE, M. D.

When the immortal Gray wrote his famous elegy, he voiced the thoughts of many who came before and a multitude who were to come after, for, next to home itself, the village church and the country churchyard form the strongest bond which unites man to the past. The ancient building, the stiff-backed pews, the cushionless seats have a tender place in the hearts of many who strayed early from the old home and have since climbed the rugged road to fame and fortune.

Then the old churchyard, what associations cling to it! His ancestors lie buried there "each in his narrow cell forever laid," father, mother, grandfather, grandmother, and perhaps even further back yet. No wonder he gladly takes a Sunday off to revisit the old churchyard; better it seems to him than the gilded edifice of his adopted city.

But things are not always what they seem, and while the sentiment lingers more about the old country church, health clings more to the elegantly appointed city building, for the ordinary country church is a very poor sanitary structure.

The greatest defect appears in the heating and ventilation; this is brought about by the existing conditions, namely, one large room heated by stoves; of course, as every one knows, heating a room by stoves is a defective method. The janitor perhaps happens to be one of those individuals whose only thermometer is his own feelings; he perches himself near the stove, and as the temperature goes up, down comes an upper window, and the cold air rushes over your back or somebody else's back, and you or that some one else is almost sure to get sick.

If a large room is to be heated by stoves the only way to secure anything like efficient heating and ventilation is by means of an air shaft or its equivalent—an open grate. This can be easily arranged if the chimney is continued to the floor. Of course, in addition to any method of heating whatsoever, there should be double doors at the entrance in cold weather.

The lighting of the country church is almost always inadequate, and though it is not a very serious defect, for the church is used so little, it is nevertheless a factor in assisting to produce eye strain and is one of the points where the country church is far behind its sister church in the city.

Much has been claimed for the individual communion cup; however much such a thing may be desirable from a sentimental point of view, no evidence has been adduced of any disease having been transmitted by the common cup. A far more pressing danger than the communion cup, and demanding more attention, is the commingling of people from homes where contagious diseases exist, especially in rural districts where sanitary laws are lax. Quite often the country church has been a focus for spreading such diseases.

The village churchyard, and the city cemetery alike, are recognized dangers for transmitting disease by poisonous wells, and there is no doubt of the reality of the danger of many country churchyards to wells in the proximity.

We recall to mind the instance in which the arsenic of an embalmed body appeared in the water of a little stream which flows through Walnut Town Cemetery in Buffalo. So, too, typhoid germs have been transmitted through porous soils to neighboring wells. On the other hand, if bodies are properly buried in a proper soil at common sense distance from wells and water courses there is little or no danger.

The germs of typhoid, which is about the only disease likely to be transmitted by soil-water, can live only fifteen or twenty days in a body after burial. In fact, all pathogenic germs are quickly disposed of in a decomposing body. Not half the danger lurks in the village churchyard that exists in the country privy and cesspool, often within twenty to thirty feet of the well, regardless of the danger of seepage and of the seepage limit, requiring five feet distance to every foot depth of the well.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

NINETEENTH ANNUAL MEETING, LOS ANGELES, CAL., JUNE 9-12, 1902.

ABSTRACT OF PROCEEDINGS.

DR. SAMUEL A. FISK, of Denver, President of the Association, opened the session with an address, in part, as follows: "In our short existence as an association we have met in many of the important centers of this country, including Boston, New York, Philadelphia and Baltimore. Five times—all the times there were—we have joined the other associations in the triennial at Washington and we have furnished a president to one of these meetings, two presidents to the American Medical Association, and one to the Pan-American.

"We have visited and seen for ourselves the hot springs of Virginia, the heights of the White Mountains, the resorts of New York and New Jersey, the wonders of Niagara, Denver and the continental divide, and now we are holding our meeting at the western limit of the country, on the border of the Pacific Ocean, and are endeavoring to inform ourselves in regard to the climatic features of California. Our members are leaders in American thought and action, too, in the lines that we advocate, and it does seem as though we vindicate our right to the term American. We aim to be national.

"But our chief claim is that we are students of climate. Others are banded together to study correcting deformities of the skeleton, the eye, the ear, the skin, or some particular part of the human anatomy, but our shibboleth is climate. We do not aim to conflict with the admirable work of the weather bureau, but to supplement it; to aid and assist it. One of our chief members is a leading member of that bureau, and we have been honored by contributions from its chief. Our members are among the closest students of its data; they have been active in its support and extension and in bringing it to the attention of the people; they have aided to establish State weather bureaus and to extend this means—and a valuable one it is, too—of observation in certain somewhat limited areas.

"Our transactions will show that our attention has been directed to the prevailing climatic characteristics of the several parts of our

country. We have had presented to us researches on the ocean climate, the seashore, the climate of the interior, that of moderate elevation, and that of more marked heights. We know something of the effects of pure air, coupled with elevation and dryness, or of pure air wafted in by the sea breeze, at ocean level and as damp as that must make it. But we are not students of climate from an indifferent, impersonal standpoint. It is our aim to apply to the individual the results of our study, to point out what would be beneficial or injurious. Man—the thinking, discriminating animate being—ever has been our object of consideration. With climate as our watchword, and not without a certain amount of taunting, we have pushed on. We have not advocated this or that drug, or this or that method.

"Man was, man is and is to be, and for him were these things made and not he for them. The Climatological Association bears this in mind. It endeavors to use the noble gift, common to all mankind, free as air, to use it aright itself and to show others how to use it. This gift of life is not limited to any one region, is not confined to any one spot. Man can live and does live north, east, south and west. One place has characteristics that another does not possess and to which man must adopt himself, but wherever he lives and wherever he makes his home, truth, the touchstone of science, is one and the same. She was there before man came. She will be there when man leaves, and the Lord is master."

One of the papers which elicited much comment among the delegates was that DR. ROLAND G. CURTIN, of Philadelphia, read on "The Influence of Strychnine on the Heart." He said:

"I am not in favor of such large doses of strychnine in cardiac disease as so frequently are employed in America at the present time. I realize that I am almost alone in my opinion regarding the administration of heroic doses of this drug as a heart tonic—not that I wish to deny the usefulness of rational doses of strychnine in certain conditions of cardiac weakness, but I wish to call special attention to the abuse of the remedy. It would be folly to condemn unreservedly its use in tonic doses in selected cases, or in full doses in emergencies, such as occur in the acute infectious diseases unaccompanied by microscopical changes in the pericardium or endocardium or to help tide over such crises as occur in primary shock or operative shock.

"Laboratory research and clinical observations have established the following physiological actions of strychnine in so far as it effects the cardio-vascular apparatus: Physiological doses pro-

duce vaso-motor stimulation, resulting in a rise of blood pressure, and probably stimulates directly the heart muscles and also its peripheral inhibitory apparatus; toxic doses cause lowered functional activity of the motor nerve trunks by producing exhaustion and by direct paralytic influence, also paralysis of the peripheral vagus and depression of the heart and vaso-motor system.

"These statements are self-explanatory and need not be commented upon further than to say that the results vary somewhat, depending upon the size of the dose given. For instance, the primary stimulation of the vaso-motor centers is soon followed by a fall of arterial pressure caused by vaso-motor palsy, and if large doses are given an immediate fall is produced, by depression of the vaso-motor centers, without their being primarily stimulated. Within the past four years I have been called to see several patients, two of them physicians, who have been thrown into convulsions by such treatment. One of the physicians said: 'Doctor, I think the trouble is too much strychnine.' I thought so, too, for even slight pressure on the bed caused him to jump, and whenever he attempted to talk he had a spasm of the diaphragm. I suggested, at the consultation, that the question to be decided was not what should be given, but what should be taken away, and advised giving the drug in much smaller doses.

"Recently I made an experiment on a strong man to determine the action of strychnine upon muscles. The forearm of a strong, healthy man was tested with a dynameter, and it was found that he could squeeze eight pounds and hold it for three-quarters of a minute. He was then given strychnine up to its therapeutic limit and tested again. This time the dynameter registered half a pound more, but the man could not hold the instrument. This is not the character of the contraction which we desire to produce in the cardiac muscle. It increases the strength of the heart grasp, so to speak, but the grasp does not hold long enough to fully expel the blood.

"In protesting against the abuse of strychnia the question may be asked what drugs are to be given in the place of it. Experience has led me to place the most dependence upon digitalis and alcohol —digitalis because of its remote as well as of its immediate effects, and alcohol because in addition to its being a diffusible stimulant to the circulation it is a valuable tissue food. Strychnia fulfills neither of these important offices."

Dr. A. C. Getchell, of Worcester, read a paper on "The Climate of Central Massachusetts." Dr. E. De Schweinitz, of Washington,

on "Some Comparative Studies of the Tubercle Bacilli and Their Importance in Relation to Tuberculosis in Man," closed the first day's session. His address was illustrated. Doctors H. B. Baker, of Lansing, Mich., H. S. Anders, of Philadelphia, N. S. Davis, of Chicago, F. Savary Pearce, of Philadelphia, Harold Williams, J. O. Cobb and Thomas Darlington, Jr., of Kingsbridge, N. Y., were on the program for addresses, but failed to put in an appearance.

The afternoon was spent at Santa Monica. In the evening the annual dinner took place at the Westminster Hotel.

Second Day.

William G. Burns, Section Director, U. S. Weather Bureau, read a paper on "Some of the Salient Climatic Features of Arizona," as follows: "It is only possible, in order to confine myself within the allotted time, to refer to the climate of Arizona in a cursory way, for our climatic features are as varied as our topography is diversified, and within the borders of the Territory may be found all the gradations from the sub-tropical to the high temperate.

"A brief reference to the topography of the Territory leads to a better understanding of its climatic features. The surface of Arizona is a succession of plains, plateaus, buttes and mountains, extending step-like from sea level in the southwest to elevations of several thousand feet, toward the north and east, attaining an extreme elevation in the San Francisco Peak that stands 14,000 feet above sea level. The term plain is used as descriptive of that portion of the Territory lying below the contour of 3,000 feet and embracing the counties Yuma and Pima, and portions of Maricopa and Pinal. The plateau, comprising more than half the Territory, is measured above the contour of 5,000 feet. The plains and plateaus are traversed by mountains having a northwest and southwest trend. In the region of the plains are situated the principal agricultural valleys, nurtured by water drawn from the Colorado and from the Gila and its tributaries. The physical features represent the rough and rugged drawings in Nature's sketch book, and interspersed here and there, and ensconced between ragged mountains, are fertile and verdant valleys, oases in the far-reaching desert and man's reclamation of waste through water's magic touch.

"It is by reason of this diversified topography that we encounter so many phases of climate in crossing the several contour lines.

At any time of the year it is possible to move to a warmer or colder climate, and the range of mean temperature between the several places is always pronounced.

"For the purpose of exemplification the climatic features of a few places, widely separated, have been selected. These places are named particularly because they afford ample accommodations for visitors. In southern Arizona we have Phoenix, Tucson, Oracle and Yuma; in northern Arizona—Prescott, Castle Creek, Hot Springs and Flagstaff. Southern Arizona, all conditions considered, presents the finest winter climate of any section of the North American Continent. It only needs to be shown that we have in northern Arizona, at Prescott and at Flagstaff, a delightful summer climate, places where the mean temperature in the hottest month does not exceed 74° at Prescott, nor 68° at Flagstaff. These places are within the timber line, and the air is charged with the soothing aroma of the surrounding extensive pine forests. The Weather Bureau records show a mean temperature of 64.6° for Flagstaff for the three summer months of 1901. The mean of the maxima was 80.1° and of the minima 49.1°. The highest temperature recorded was 92° and the lowest 30°. There were 27 clear, 33 partly cloudy and 32 cloudy days during the period. The total rainfall was 4.56 inches and the number of rainy days (days with .01 or more of precipitation) was 28. Prescott for the corresponding period had a mean temperature of 70.5°; mean maxima 88.7°, and mean minima 52.3°. The highest temperature was 102° and the lowest 33°. There were 48 clear, 36 partly cloudy and 8 cloudy days. The total precipitation was 5.29 inches, and the number of rainy days was 21. This period of healthful, invigorating climate is not strictly confined within the time named, but is likewise desirable for five or six months of the year.

"Before we pass to a consideration of the climate of southern Arizona, your attention is invited to Oracle, a health resort about 40 miles northeast of Tucson. On account of its elevation it does not present the climate that its latitude would indicate, when compared with other places. It is somewhat colder in winter, its average temperature for December, January and February being 45.8, and it is cooler in summer, its average temperature for June, July and August being 78.8°. For the year 1901 it shows 269 clear, 58 partly cloudy and 38 cloudy days. The mean for the year was 62.7°; the highest temperature was 101° and the lowest 19°.

"The winter climate of southern Arizona is justly famed, and I

may state that the heat of the summer has not the terrors depicted by the uninformed. I speak of the climate of Phoenix and the Salt River Valley more in detail, because the data is at hand and more available, but it is only a type of what we find at Tucson and Yuma, the chief difference being a matter of elevation. In all climatic elements they practically agree except a slight increase in precipitation and wind movement with elevation.

"Meteorologists recognize a path of storm movement and frequency, along which there are pronounced changes in the weather conditions every few days. I refer to cyclonic and anti-cyclonic progression, or, as described on Weather Bureau maps, areas of High and Low. This path of atmospheric activity is better defined in some sections than in others. Southern Arizona is not within this path of disturbance. Violent storms are infrequent and cold waves unknown. The weather is equable in the sense that there is slight change in the mean temperature from day to day.

"It is not my purpose to engage your attention with a long array of figures. Data of this kind are better digested and understood by personal inspection and study. But it is found necessary to present some information in figures. These are taken from the annual meteorological summary of the Phoenix station for the year 1901. The mean of the maxima for the winter months was 67.5°, and of the minima 40.2°; the highest temperature was 85°, and the lowest 24°. Our cooling process proceeds almost entirely from radiation, and there is a gradual fall of temperature from sunset to sunrise. The mean daily range was 27.3°. The range between day and night is great, but that is always an incident where cloudless skies obtain. Your attention is specially invited to the mean daily variability or change, or the difference in the mean temperature from day to day. This change averaged 2.8°, and indicates a great evenness of meteorological conditions and a lack of sudden and pronounced changes. During the winter we had 14 days with a minimum below 32°. A mean temperature above 50° was recorded on 65 days, and a mean above 59° on 18 days. The mean relative humidity was 46 per cent. Professor Phillip B. Woodworth, of Lewis Institute, Chicago, who has been making a special study in mean temperature and moisture in the atmosphere as the source of differentiation in the development and temperament of man, says, 'that a thermometer range of 65 to 70 degrees, with an atmosphere saturated 45 to 55 per cent, unite in a condition that is ideal for man.' Our winter days closely approximate these conditions. The precipitation (all rainfall) measured 1.89 inches. During this period there was bright sunshine for

669.8 hours out of a possible 937.5, and, expressed in terms of percentage, the average was 72 per cent. This, however, was the lowest record made in the past seven years. There were 47 clear, 21 partly cloudy and 22 cloudy days; there were nine days on which .01 inch or more of precipitation fell. Fog occurred on two days, and we have had only ten days with fog in seven years. The average wind movement was 3.8 miles per hour—a gentle, almost imperceptible breeze.

"You have been shown only the meteorological conditions obtaining during the winter months. We could go further and show almost as favorable conditions for six months, from October 15th to May 15th.

"I desire to touch briefly on a subject that is often discussed, relative to the effect of irrigation in increasing the humidity of the atmosphere in this locality. A drop of ink let fall into a hogshead of water is certainly there, but it would take a careful chemical analysis to make a determination. The water vapor evaporated from the irrigated fields adds to the humidity of the atmosphere, but when the small area under irrigation is considered with the adjacent desert region, and the great capacity of surrounding space for water vapor is taken into account, and the moisture content is so far from being satisfied, we conclude that it has a salubrious rather than a deleterious effect. During crop-growing seasons, when the water is spread over the greatest possible area, relative humidity as low as 3 per cent. has been measured.

"No invidious comparisons have been made with other sections laying claim to climate having therapeutic qualities. An investigation of our presentation will show all we claim. With an extreme breadth from east to west of 335 miles, and an extreme length from north to south of nearly 400 miles, embracing an area of 113,000 square miles; with our snow-capped mountains of great elevation extending to sandy deserts at sea level; with our heavily timbered forests, our grassy plateaus and extensive deserts, they all unite in presenting varied meteorological features and climatic conditions.

"It is not my province to discuss the requirements of medical climatology, nor the specific climatic conditions necessary for certain classes of disease, but the statement may be safely advanced that where the requirement is dry air and constant sunshine, that condition exists to an eminent degree within the borders of Arizona."

Climatological data for the year 1901, appended: Temperature,

highest, 112°; lowest, 24°; mean, 71°. Precipitation, total, 4.87; normal, 7.21; mean humidity, 37°. Weather, clear, 233; part cloudy, 88; cloudy, 44; .01 inch or over, 29; percentage of possible sunshine, 81. Average hourly velocity of wind, 4.3.

Of the other papers read, or presented only, available space admits titles only, as follows:

"The California Climate," by Dr. W. F. R. Phillips, the weather bureau, Washington.

"The Climatology of California," by Prof. Alexander G. McAdie, director of the weather bureau, San Francisco.

"The Climatology of the Eastern Foothills," by Dr. C. A. Sanborn, Redlands.

"The Climatology of the Western Foothills," by Dr. George E. Abbott, Pasadena.

"The Coast Resorts of California," by Dr. William A. Edwards, Coronado.

"Canadian Climates and Health Resorts," by Dr. Guy Hinsdale, Philadelphia.

"Further Investigations Into the Blood-Count at High Altitudes," by Dr. W. A. Campbell, Colorado Springs.

"When May a Patient With Tuberculosis Return Home After a Residence in Colorado?" by Dr. S. G. Bonney, Denver.

"Sanatorium Treatment of Tuberculosis in Colorado," by Dr. S. E. Solly, Colorado Springs.

"The Sanitary Tent and Its Use in the Treatment of Tuberculosis," by Dr. C. F. Gardiner, Colorado Springs.

"Research Work," by Dr. Henry Sewall, Denver.

"The Effects of Moderate Altitude Upon the Circulation," by Dr. H. B. Whitney, Denver.

"Remarks on Intrathoracic Pressure, With Illustrations of the Author's Method of Producing Lung Immobilization," by Dr. Charles Denison, Denver.

"Practice at Sea Level and at an Altitude of Six Thousand Feet," by D. W. H. Swan, Colorado Springs.

"An Appeal for the Tuberculosis Invalid," by Dr. B. P. Anderson, Colorado Springs.

OFFICERS ELECTED FOR ENSUING YEAR.—At the closing session of the American Climatological Association at Los Angeles, June 12, the following officers were elected: President, Dr. Norman Bridge, Los Angeles; vice-presidents, Drs. J. C. Wilson, Philadelphia, and H. S. Orme, Los Angeles.

VALUE OF THE KINDERGARTEN.

Sometimes one can state a case more clearly in a concrete appeal than in the abstract. I think I have stated my appreciation of the kindergarten in the following communication to a local paper more clearly than ever before. It has been the habit of some of my editorial friends in a local contest to appeal to me for a signed article on the question at issue. Such was the case in Winchester in December last. I was 2,000 miles away when the letter reached me, but I got the following letter back in season for use. I have too much experience to assume over much credit, but the fact is none the less gratifying that a public meeting that was expected to be strongly anti-kindergarten voted unanimously the other way:

OPINION OF AN EDUCATIONAL EXPERT.

Editor of the Star:—A prominent citizen of Winchester has asked that I give my opinion on kindergartens in the "Star" this week. The facts as stated are that the school committee recommends the discontinuance of the kindergarten in the months of January, February and Mareh because of small attendance, and adds that there is a wide difference of opinion in town regarding the kindergarten because of the expense, which he claims to be large.

Far be it from me to take any part in the discussion of local affairs, and especially regarding the discontinuance of the sessions for the three winter months; but I am pleased to have an invitation to speak of the kindergarten as a whole, and this need not have anything to do with the relative expense in Winchester.

The kindergarten is an important part of the school course, and it should be for all the children who care to attend. It is a prelude to the school course. The right kind of a kindergarten affects for great good the child's whole school life. The primary school work in any town is decidedly improved when it follows the kindergarten. Primary school work is in a better spirit, and the child is in a vastly better mental attitude.

Whoever knows what the kindergarten has done for the towns in which it has been well tried knows that to abolish it would be to double the number of primary teachers. No primary school teacher can do reputable work with newcomers if she has more than twenty-five children. All statistics demonstrate that in towns

and cities with no public kindergartens about forty per cent. of the primary children are required to do the work of the first or second grade over, so that forty per cent. of the primary schools must be charged up to the absence of the kindergarten.

I believe it can be demonstrated wherever it has been fairly and wisely tried that the kindergarten is no appreciable expense.

Hurl fifty children upon a primary teacher and it is a case of the survival of the fittest, and in two years fully forty per cent. prove to be the unfittest—and the worst of it is that this forty per cent. never get on well, for they are never well on their feet.

I am certain that the greatest waste ever discovered in the school system has been the way in which we have allowed from fifty to sixty children, from all kinds of homes and all conditions of maturity, to be thrust upon the teacher, who did the best she could, but the best was to leave many of them in the state of suspended intellectual activity until it was too late for them ever to catch up.

From a good kindergarten there are never any stupid children, never any that have not had a good start. The kindergarten does not provide brains, but it gives the brains of every child a fair start.

I speak from a pretty fair comprehension of the school system of thirty-six States of the Union, from some personal acquaintance with it, and from a close study of the conditions of hundreds of cities and towns, and I am convinced that the kindergarten is the most humane, most judicious, most economical expenditure of money in the entire system. If I had to save money anywhere in the system, it would be in the last year in the high school rather than in the kindergarten, and I certainly would not do that unless it was to save the town from bankruptcy. I am certain that the money in a good kindergarten is the best money expended in any town.

A. E. WINSHIP.

The above is here printed by request.—*Journal of Education.*

ONE WAY TO FIGHT CONTAGION, AND WHAT SCHOOL CHILDREN SHOULD BE TAUGHT.

By CHARLES V. CHAPIN, M. D., of Providence, R. I.

An editorial in the "Medical News" not long since referred to the discouraging experience of a city which, after adopt-

ing new and stringent measures for combating communicable diseases, found that the diseases, the control of which had been attempted, had increased rather than diminished. I suspect that this experience is not unique. We used to hear a great deal of hopeful prophecy about stamping out scarlet fever and diphtheria, but we still have them with us, though it is true they are not so common as in former years.

A study of the statistics of communicable disease in our cities indicates only a moderate success for our present methods of notification, isolation and disinfection. The history of Boston, for instance, is a discouraging one. Boston has more ample hospital facilities for caring for scarlet fever and diphtheria cases than any other large city. Its physicians are not surpassed by any as regards intelligence, education and public spirit. The proportion of cases reported is very large. Regulations in regard to isolation are stringent and unusually well enforced, yet the number of cases of scarlet fever and diphtheria is not perceptibly less than in other cities. In England, where many more than half the cases of scarlet fever and diphtheria in the large cities are removed to hospitals, these diseases prevail almost as extensively as in the United States. It is doubtless true that the increasing practice of isolation in these diseases has had its influence in their diminution, but the progress made has not been nearly so great as was hoped.

The writer has little doubt as to what is the chief reason for this. It is the existence in the community of a considerable number of infected persons who are only very slightly sick, or are not sick at all. A careful study of the cases of these diseases as they occur demonstrates that it is rarely possible to connect them with existing cases already recognized. Our methods of isolation, so far as they are applied to acknowledged cases, seem to be effectual. Every health officer is forced to admit that it is the unknown sources of infection which cause the trouble. The milder the infection, the less likely are the infected persons to be known, and the more difficult it is to control them. The present outbreak of smallpox is due to the mildness of the affection, very many cases being unrecognized. That many persons who are only slightly ill, or perhaps entirely well, are dangerously infected with diphtheria is well known. Bacteriological studies reveal the fact that from two to three per cent. of healthy persons are infected with growing diphtheria bacilli. It is true that the bacilli are not virulent in every case, but even if they are virulent in only a small proportion, we yet have enough to render it likely that these in-

fected well persons are the chief factor in the spread of the disease.

While we are searching for better methods of dealing with these diseases, there is one line of warfare against them which ought to be pursued more energetically. If unrecognized infection is moving about among us, each of us must learn to protect himself. In diphtheria, tuberculosis, and scarlet fever in its early stages, and doubtless in smallpox, the virus is contained in the secretions of the nose and mouth. People should be taught to take care of their own secretions and to avoid contact with the secretions of others. In other words, they should be taught to be clean.

This matter was recently brought up in the Massachusetts Association of Boards of Health by Dr. Theobald Smith, and a committee, of which he is a member, drew up a report urging the teaching of cleanliness among school children and suggesting methods therefor. The means urged were as follows: (1) Lectures to teachers on the relation of cleanliness to health; (2) the distribution of circulars on this subject; (3) object teaching by the school department. The municipality should set an example in cleanliness in the provisions made for the pupils. The drinking cup used in common by the pupils should be abolished. The greatest care should be taken of the text-books, especially if furnished by the State, and soiled books should never be given out. Pencils, pens, etc., should be absolutely separate for each pupil. If slates are used each child should be required to use for erasing a cloth or sponge kept in his or her desk. If modeling clay is used each pupil's portion should be kept by itself. In general, it may be said that the school authorities should provide that each pupil shall have its own private school material, and that as little as possible shall be used in common.

In accordance with this plan, the following circular has recently been distributed among the teachers in the public schools in Providence, and similar but briefer rules will be distributed among the children. This circular is here given because it is believed to set forth some of the principles of cleanliness which should be practiced and the reasons therefor.

SUGGESTIONS FOR THE TEACHING OF CLEANLINESS AMONG SCHOOL CHILDREN.

The poisons of some of the common and also of some of the most loathsome diseases are frequently contained in the mouth.

In such cases anything which is moistened by the saliva of the infected person may, if it touches the lips of another, convey disease. The more direct the contact the greater the danger.

It is the purpose of health officials to keep in isolation all persons having communicable disease during the time that they are infectious. But in many cases this is impossible. Little restraint is put on certain mild diseases, such as measles, whooping-cough, chicken-pox and mumps, and even such diseases as diphtheria, scarlet fever and tuberculosis are frequently so mild as to be unnoticed, and children affected with them mingle freely with others. It is probable that in such cases one of the chief vehicles of contagion is the secretion of the mouth and nose. It is believed that much can be done to prevent contagion by teaching habits of cleanliness. But if such instruction is to be effectual it must be continuous. The teacher must notice and correct violations of those rules as habitually as the violations of the more formal school rules are corrected.

Even if the question of disease and contagion did not enter into the matter at all the subject ought to be given more attention by teachers. Our schools should not only teach reading, writing and arithmetic, but it is perhaps quite as important that they should inculcate cleanliness, decency, refinement and manners. Cleanliness should be taught for its own sake, even if it had no relation whatever to health.

TEACH THE CHILDREN

Not to spit; it is rarely necessary. To spit on a slate, floor, or sidewalk, is an abomination.

Not to put the fingers into the mouth.

Not to pick the nose.

Not to wet the finger with saliva in turning the leaves of books.

Not to put pencils into the mouth or moisten them with the lips.

Not to put money into the mouth.

Not to put pins into the mouth.

Not to put anything into the mouth except food and drink.

Not to swap apple cores, candy, chewing gum, half-eaten food, whistles or bean blowers or anything that is habitually put in the mouth.

Teach the children to wash the hands and face often. See that they keep them clean. If a child is coming down with a com-

municable disease it is reasonable to believe that there is less chance of infecting persons and things if the hands and face are washed clean and not daubed with the secretions of the nose and mouth.

Teach the children to turn the face aside when coughing and sneezing, if they are facing another person.

Children should be taught that their bodies are their own private possessions, that personal cleanliness is a duty, that the mouth is for eating and speaking, and should not be used as a pocket, and the lips should not take the place of fingers.—From *Medical News*, March 8, 1902.

MEDICAL EXCERPT.

By T. P. CORBALLY, A. M., M. D.

TREATMENT OF MENTAL ALIENATION BY CONTINUOUS BATHS.—On the editorial page of the *Progres Medical* of July 19th is the following:

On the third day of May last we published an article on this subject, because the documents then given showed that the subject was under earnest consideration.

We then said that the French psychiatrists had for a long time applied prolonged baths but that we did not think that the night bath had been long in use in France, at least because of the difficulty that this treatment presented both for the attendants and for the patients.

But in its historical development during the fifty years of the medico-psychological society, M. Reitti has remarked that truth as well as error has its unconscious devotees.

The communication of Dr. Bonnefous on baths long continued in the treatment of certain forms of mental alienation, which was cited at the Seance of January 25, 1869, was given (*Annales medico-psychologiques*, serie V., t. I, 1869, p. 433).

M. Bonnefous calls "the attention of the Society to the use of continuous baths continued during days and weeks for the treatment of certain forms of mental alienation." He furnishes cases in its support, and he advances the opinion that D. Turck, of Plombières has greatly injured the general use of baths, because while insisting on their general efficacy he has put forward a very strong objection to their use by calling such cases incurables and little benefited by treatment in asylums.

The facts advanced by M. Bonnefous prove that he occupies a distinct place in regard to this method, one which he attributes to Brierre de Boisment and to Casimir Pinel. The treatment minutely described is, with some difference, that which I have found detailed in German journals. (See *Annales*, p. 439, 440.) He gives importance to continued baths combined with *repose in bed.*

It is none the less true that the account that concludes my bulletin remains perfectly exact.

The method has not continued in favor, because it was impossible to confine our countrymen in the water without using the famous convercle (*Annales*, p. 538), and that required a special service because public opinion was opposed to its use.

Then is it not true that every therapeutic method has its indications and its contraindications?

Still there is nothing more difficult to establish than the indications and the contraindications in such cases, for no matter what method of treatment be applied to cases of mental alienation there are some who, while they are suffering, are habitually under control and repose in bed, yet are found to be uncomfortable in this apparent repose. Let us then study the indications and the contraindications without exhibiting too much eagerness to arrive at general conclusions; give every test a fair trial. P. KERAVAL.

WOUNDS BY THE LEBEL BAYONET.—*La Nouvelle Revue* publishes an interesting article on the effects of modern arms by Maurice Buret. (See *Progres Medical*, July 19, 1902.) The following paragraph on wounds produced by the bayonet of the Lebel gun is given.

This bayonet makes a quadrangular but very small wound when it strikes the body perpendicularly. If, on the contrary, the direction of the weapon is oblique the wound presents all the forms possible, according to the angle of incidence, from a circular orifice to an irregular and serrated edge. The hemorrhage is always very small, or even absent. The pain varies with the depth; it may cause only the sensation of a slight puncture or be followed by excessive agony and even complete syncope when internal organs are punctured. It has been remarked that a bayonet thrust is not always followed by fatal results. If some complication does not follow the healing of the wound may progress with wonderful rapidity. In eight days the cicatrization is often complete. It may be said generally that if there is no lesion of an important organ, as the heart, one of the large vessels, the lungs, etc., and if internal hemorrhage does not set in, resulting in almost immediate

death, the prognosis is favorable, and in such cases recovery is the rule.

RESECTION OF CERVICAL SYMPATHETIC.—M. François Franck read to the Académie de Médecine on the presentation of a paper by MM. Jonnesco and Floresco, of Bucharest, on the phenomena following the resection of the cervical sympathetic, a report, a summary of which we present here (*Gazette Hebdomadaire*, July 6, 1902):

Among the changes following the resection of the cervical sympathetic some are persistent, others of short duration. Among the former may be mentioned the closing of the pupil, the falling of the upper lid, the congestion of the conjunctiva of the lids and bulb, the gums, the brain, etc. These congestival changes may last for three years after the operation.

On the contrary, the diminution of the ocular tension, the suppression of the function of perspiring, the difficulty of mastication and deglutition, the influence on nutrition and the hyperesthesia tend to disappear or disappear completely after a short time.

The resection of the cervical sympathetic does not cause any general disturbance of the system. Physical or intellectual development after the operation, no matter what the age may be, are in no way disturbed by the surgical intervention.

AUTOMATIC RETRACTORS OF THE TONGUE.—M. Laborde presented a l' Académie de Médecine two models of automatic tractors of the tongue; one acts by a clock movement; the other is acted on by an electric motor; an accumulator enables the apparatus to work during six hours (*Gazette Hebdomadaire*, June 29, 1902).

On this occasion M. Laborde presented a case of M. Paul Delbet, which, in a case of grave syncope from chloroform that had resisted all the classical means, restored the patient to life by means of rhythmic traction of the tongue.

An interesting part of this fact is that these tractions are of no power so long as they are made by holding only the extremity of the tongue. They became more active from the moment that the whole anterior part of the tongue was grasped. M. Laborde has insisted in all his preceding communications on the necessity of holding at least one-third of the anterior part of the tongue; without that no action is communicated to the larynx and its nervous organs are not brought into action.

LIGATURE OF VENA CAVA INFERIOR.—M. Houzel presented

("Gazette Hebdomadaire," May 25, 1902) to the Société de Chirurgie a communication on the application of a ligature on the inferior vena cava which was followed by a perfect cure. The patient was a woman, thirty-six years of age, for whom I had incised a pyonephrosis, and who some time after that operation returned in a state bordering on cachexia, for which I decided to perform a nephrectomy. The peri-renal adhesions rendered the operation extremely difficult, and the vena cava was torn on its length to the extent of about one centimetre. I tried to apply a lateral suture, but as the blood continued to flow, I applied two catgut ligatures, one above and the other below the vascular wound. The results following the operation were without complication, and the patient recovered rapidly. There was, following the operation, only a little œdema of the lower extremities. The operation was performed just a year ago, and this woman continues her business without experiencing any trouble in the circulation.

ECTHOL IN SCARLET FEVER.—John M. Turk, M. D., Canton, Ga. (New Orleans *Medical and Surgical Journal*, May, 1902), after having used ecthol for one year in an epidemic of scarlet fever, says that it has accomplished more than any agent he has ever used in a practice of forty-three years. Ecthol robs scarlet fever of all the distressing sequels, such as nephritis, ear complications, adenitis, membranous angina, etc., if the remedy is given early enough and as often as two or three hours, in bad cases, until desquamation is over, then not so often. A great many of his cases were malignant and quite a number ushered in with convulsions. In some cases he gave double the prescribed dose. It prevents in a large degree the disintegration of cellular tissue, and will not disappoint any who may use it in scarlet fever.

UROTROPIN IN TYPHOID FEVER.—In "A Review of the Progress of Therapeutics for the Last Twelve Months," presidential address delivered before the American Therapeutic Society, New York, May 13, 1902, Prof. R. W. Wilcox said (*Medical News*, June 7, 1902):

"In enteric fever the cystitis is cured and the urine freed from the bacillus of Eberth by Urotropin. It has established its place as the most certain and useful urinary antiseptic and has come to stay."

FAITS NOUVEAUX.—Injection intra-veineuse d'oxygène.

The terrible accidents that follow the introduction of air into

the veins is well known. G. Gaertner has had the idea of inquiring if the injection of pure oxygen into the dog would give rise to the same accident as the introduction of air. He has fully determined that the injection of pure oxygen is harmless if the entrance is made slowly and with a light pressure; considerable quantities of oxygen may be injected into the circulation; the venous blood becomes arterialized so perfectly that in the right heart the blood is of a bright red. During the injection of the oxygen the arterial tension is not perceptibly modified while during the injection of air it is very greatly lowered. Gaertner has made during the last two years very many experiments on the dog. The uniformity of the results fully authorizes the proposition to try the experiment on man in cases of obstruction of the larynx, the trachea, the broncho-pulmonary organs, as in foreign bodies causing obstruction in croup, continued pneumonia in oxycarbonate intoxication; in the asphyxia in new-born children the oxygen should be introduced into the umbilical vein.

That is a very bold therapeutic application, but one that seems perfectly legitimate in view of the well-conducted and satisfactory experiments (*Ueber intravenose Sauerstoffinfusion, Wiener Klinische Wochenschrift*, Nos. 27 and 28, 1902).

DR. J. SABRAZES.

ABROGATION OF THE USE OF SACCHARINE.

W. P. Atwell, U. S. Consul at Roulaix, reports (April 8, 1902) that the French Legislature recently voted a law prohibiting the use of saccharine and all other artificial sweetening, with the exception of such kindred substances as are used in pharmacies.

Mr. E. Eloir, a scientist of Lille, maintains that saccharine, the so-called "sugar of the poor," can be replaced advantageously by good crystallized sugar, the direct product of French refineries, and insists that this should be exempt from all duty.

As the cost of sugar production is greater in France than in Germany and Austria, as labor and transport command higher rates, Mr. Eloir urges an increase in duty of 5 francs per 100 kilogrammes (96 cents per 220 pounds) upon foreign sugars imported into France.

The retail prices of sugar per kilogramme (2.2046 pounds) have been, prior to October, 1901: Loaf sugar 23 cents, powdered sugar 23 cents, crystallized sugar 21 cents. Since October, 1901: Loaf sugar 22 cents, powdered sugar 23 cents, crystallized sugar 19 cents.

EDITOR'S TABLE.

SANITARIAN, SEPTEMBER, 1902.

☞All correspondence and exchanges, and all publications for review, should be addressed to the editor, Dr. A. N. Bell, 337 Clinton St., Brooklyn, N. Y.

SCHOOL HYGIENE.

But few subjects in the purview of preventive medicine have received more earnest attention by sanitarians during recent years than school hygiene. But it is remarkable to notice that the school *teaching* of hygiene has continuously lagged behind school *house* sanitation; that the architects and builders of school houses have shown a higher appreciation of the sanitary requirements of the schools than the school teachers, who have all along shown ignorance, or neglect, of available resources.

Twenty-nine years ago THE SANITARIAN had occasion to publish a fairly representative picture of school teachers' neglect, as it at that time obtained.

A recently constructed city grammar school, heated by seven hot-air furnaces, and reputed to be thoroughly ventilated, invited a visit. On inspection, beginning in the basement, where the janitor and family lived, the first object that attracted attention was a large air shaft, extending from the side wall close up under the floor to one of the large furnaces and then with a right angle turned down and entering the floor beside the brick-wall inclosure of one of the large furnaces. This ostensibly "fresh air" conduit, the janitress, who accompanied the inspector, said, in reply to inquiry, was always kept open, and, showing the damper, which on this particular occasion happened to be closed, apparently to the surprise of the janitress. The damper was quite loose and easily pulled out, and from the crevices, even before pulling it out, a distinct and disagreeable odor was realized.

Going outside (it was a cold, drizzly day), and proceeding to the mouth of the air shaft, it was found to be closed by a thin stone slab set up against it, except by open crevices of an inch or two on either side near the base. Turning the slab down at once revealed the source of the odor at the damper—a hen and chickens! A complete reversal of the purpose of the function of the air shaft, in that it provided a supply of *fowl* air instead of fresh. Of the whole seven furnaces one only had an unobstructed fresh air shaft; but one, however, was obstructed by a hen roost.

Proceeding to inspect the efficacy of the ventilating shafts, the janitor was found in the third story attending a magic lantern in a crowded room at a lecture. The windows were closed to exclude the light, and the air was sickening. After considerable waiting he had time to show the passageway to the roof, but then he had difficulty in finding his key, meanwhile protesting that examination was wholly unnecessary, that there were several ventilating flues, each one carried up separately like a chimney, and communicating with an open ventilator. But inspection was insisted upon, and the key was finally found.

The flues were grouped at the top on each side of the house, each group appearing to open into a separate cupola. But on ascending to the roof the first one of the two cupolas come to was found to be floored, the floor resting upon the top of and closing the shafts of that side of the house. The janitor was at first at a loss to account for this—said it had been so ever since he had been there. But on further reflection, after some probing, he thought his boy had done it for the purpose of using the cupola for a pigeon house! The principal of the school knew nothing about these new adaptations of the ostensible provision for school-house sanitation —didn't consider it any of his business.

And, shortly after publishing this description, the chairman of the committee on "hygiene" of the Board of Education made a personal call on the editor of THE SANITARIAN, and took him severely to task for "scandalizing the public schools of New York!" He was alike ignorant of the conditions as the principal of the school—had never given them any concern.

As member of the Board of Education of Brooklyn, 1877-'78, the editor discovered conditions of the newer public school buildings there, in most respects similar to the one above described, except the hen roost and pigeon house, on the other side of the river; and the same inattention by the teachers. Moreover, on intercourse with his fellow members of the Board of Education, none of them had ever given any attention to the subject; and the chairman of the school-house committee, in particular, "thought it a great impertinence on the part of the new member to reflect, as he had done, on the intelligence of the members of the board who had faithfully served it for many years."

But the new member persisted. He exposed the abominable conditions at every turn. There were many classrooms so overcrowded as to afford less than 50 cubic feet of air space per pupil, several less than 30, and one—in a school house in the district, presided

over by the chairman of the school-house committee—but 17! It took him six months to secure the passage of a resolution authorizing the appointment of a committee on hygiene. Yet the teachers pursued the even tenor of *their* way, regarding themselves—from the principals down—as the mere passive instruments of the Board of Education, upon whom they depended.

The older readers of THE SANITARIAN are doubtless mindful of the interest it aroused in school hygiene by reports, contributions and editorials on the "Perils of Education," "Brain Culture," "School-Room Stunting," etc., leading up to the period of introducing the study of school hygiene and physiology into public schools, and by the making of many books on the subject. At first, mere compends of human physiology, better suited to the cramming necessity of backward medical students than to the public schools; and others more recently supplanting school hygiene and elementary physiology with the therapeutics of stimulants and narcotics to such a degree as to challenge the knowledge of therapeutics as taught in medical schools of the highest standing—the teachers all the while passive.

No wonder that the question has now arisen among philosophical educators whether school hygiene had not better be altogether dispensed with than pursued under present conditions.

Evidently a twofold mistake obtains: The incompetency of both teachers and pupils to solve the requirement, but with no discredit to either party; the incompetency of the teachers to properly appreciate and teach what they never have learned, and the incapacity of the pupils to comprehend the subject as presented in the books. The books in use are overloaded with matter beyond the capacity, necessity or opportunity of the schools, while they are altogether deficient in practical knowledge. There should be but a minimum of anatomy, so much of physiology as appertains to nutrition of body and mind, a maximum of hygiene comprehending all the conditions promotive of health, and a knowledge of all the conditions in conflict with it. All this might be called sanitary science.

School hygiene means practical knowledge of the subject based upon the laws of physiology and pathological knowledge; of the requirements for healthy development and how to maintain them, as related to the bodily and mental growth of children and youth, and of knowledge of the conditions promotive of the supply of such requirements. It is, in short, necessary for the conservation of both mental and bodily health that the consideration of all the

known conditions that favor or impair the plastic growth of the system should be at the command of the teacher. The incapacity of children and youth to grasp physiological knowledge as presented in the books used is well known to every school teacher who has ever tried to so present it, and without any discredit to the teacher. The subject requires knowledge of the conditions of disease, as well as of health, and how to avoid them. Hence the competent teacher must not only be able to comprehend the physical ability as well as mental capacity of his pupils, but have knowledge of the ways and means of quickening and increasing their discriminating aptitude on physiological principles, always bearing in mind that the best brain is of but little value, if there be not enough physical strength to use it, and hence to undertake to satisfy the one source of power by sacrificing the other is the reigning folly of all superficial teachers, and of none so much as superficial teachers of physiology and hygiene.

Evidently school hygiene, to be effectually taught, requires the practical effort of the trained sanitarian on a physiological basis, by lectures—short lectures adapted to the receptive capacity of the pupils. So taught two or three times a week, in conjunction with books divested of superfluous matter, as suggested, or without any books on the subject at all, it would accomplish an eminently useful purpose and have rid the teachers of an embarrassing subject.

A NEW SLAVERY.

The reputation of the people of the Southern States for kindness to their negro slaves, lest they should be overworked and stunted, before the war, seems likely to be forever cast into oblivion by the enslavery of their children.

A representative of "The Dry Goods Economist" (New York), who has been making a personal investigation of this matter, and has written several valuable articles for his journal on the topic, sums up his findings as follows:

"First, that from one-tenth to one-fifth of the total number of cotton-operatives are mere children.

"Second, that they work from eleven to twelve hours a day.

"Third, that they are paid from 10 to 50 cents a day.

"Fourth, that boys and girls from fourteen to eighteen make from 50 to 75 cents a day.

"Fifth, that adults rarely make over a dollar a day, and that on piece work.

"Sixth, that the children's work, though not heavy, is grinding and nerve-racking.

"Seventh, that the constant buzz of whirring wheels, the high temperature, and vitiated air—conditions inseparable from cotton-mills—wear down the stoutest frame and strongest nerves, and the children so employed ere long lose the bright eye, healthy glow, and elastic step which is the common heritage of youth.

"Eighth, that in many cases these urchins are held in hopeless bondage to their illiterate, heartless, and avaricious parents.

"Ninth, that the normal order of things is, alas, too often inverted, and the saddening spectacle presented of weak children supporting able-bodied parents, in lieu of parents supporting their offspring.

"Tenth, that not one out of twenty of such toilers can read or write."

MORTALITY AND MORBIDITY REPORTS AND REVIEWS.

NEW YORK.—The State is divided into sanitary districts as follows: Maritime District: Includes New York, Brooklyn, Long Island, Staten Island and Westchester County. Hudson Valley District: All the counties on either side of the Hudson River, except Westchester, to and including Albany and Rensselaer. Adirondack and Northern District: The northern section of the State—the counties of Washington, Warren, Hamilton, Essex, Clinton, Franklin, St. Lawrence, Jefferson and Lewis. Mohawk Valley District: Schenectady, Schoharie, Saratoga, Montgomery, Fulton, Herkimer and Oneida counties. Southern Tier District: The seven counties along the southern border of the State. East Central District: Sullivan, Delaware, Otsego, Madison, Chenango, Onondaga and Cortland counties. West Central District: Cayuga, Tompkins, Seneca, Schuyler, Ontario, Yates, Livingston, Genesee and Wyoming counties. Lake Ontario and Western District: Oswego, Wayne, Monroe, Orleans, Niagara and Erie counties.

Bulletin for June, 1902:

Maritime District, 3,948,902; deaths, 6,579; death rate, 17.09; per cent. of deaths under five years, 34.5; from zymotic diseases, per 1,000, from all causes, 200; from typhoid, 48; from smallpox,

57; scarlet fever, 98; diphtheria and croup, 184; diarrhœal diseases, 587; consumption, 650; acute respiratory diseases, 644.

Hudson Valley, 690,000: Deaths 776; death rate 14.0; per cent. of deaths under five years, 20.5; from zymotic diseases, per 1,000, from all causes, 73; typhoid, 12; scarlet fever, 4; diphtheria and croup, 11; diarrhœal diseases, 11; consumption, 85; acute respiratory diseases, 59.

Adirondack and Northern, 394,772: Deaths, 376; death rate, 11.6; per cent. of deaths under five years, 22.5; from zymotic diseases, per 1,000, from all causes, 75; from typhoid, 6; scarlet fever, 1; diphtheria and croup, 6; diarrhœal diseases, 4; consumption, 29; acute respiratory diseases, 29.

Mohawk Valley, 419,773: Deaths, 489; death rate, 14.7; per cent. of deaths under five years, 20.0; from zymotic diseases, per 1,000, from all causes, 70; from typhoid, 6; scarlet fever, 4; diphtheria and croup, 5; diarrhœal diseases, 13; consumption, 42; acute respiratory diseases, 41.

Southern Tier, 429,530: Deaths, 399; death rate, 11.5; per cent. of deaths under five years, 15.0; from zymotic diseases, per 1,000, from all causes, 50; from typhoid fever, 6; scarlet fever, 1; diphtheria and croup, 5; diarrhœal diseases, 2; consumption, 31; acute respiratory diseases, 30.

East Central, 402,660: Deaths, 406; death rate, 14.0; per cent. of deaths under five years, 15.0; from zymotic diseases, per 1,000, from all causes, 127; from typhoid, 5; scarlet fever, 0; diphtheria and croup, 2; diarrhœal diseases, 2; consumption, 32; acute respiratory diseases, 31.

West Central, 316,000: Deaths, 307; death rate, 10.0; per cent. of deaths under five years, 10.0; from zymotic diseases, per 1,000, from all causes, 110; from typhoid, 2; diphtheria and croup, 0; diarrhœal diseases, 0; consumption 24; acute respiratory diseases, 19.

Lake Ontario and Western, 75,600: Deaths, 898; death rate, 12.5; per cent. of deaths under five years, 22.2; from zymotic diseases, per 1,000, from all causes, 85; from typhoid, 14; scarlet fever, 7; diphtheria and croup, 15; diarrhœal diseases, 17; consumption, 87; acute respiratory diseases, 91.

Entire State, 7,467,050: Deaths, 9,449; death rate, 15.5; per cent. of deaths under five years, 29.5; from zymotic diseases, per 1,000, from all causes, 150; from typhoid, 99; scarlet fever, 111; diphtheria and croup, 228; diarrhœal diseases, 636; consumption, 980; acute respiratory diseases, 944.

City of New York, 3,632,501: Deaths during the four weeks ended August 16, 5,486; death rate, 18.76; deaths from consumption, 1,195; diphtheria and croup, 941; measles, 656; scarlet fever, 515; smallpox, 37; chickenpox, 57; typhoid fever, 384; deaths under five years, 2,628.

Smallpox Exterminated.

Smallpox has been completely stamped out of Manhattan Borough and has nearly disappeared from Brooklyn, according to latest reports. Dr. Lederle, president of the Board of Health, and his assistants attribute the disappearance of the disease to rigid inspection, sequestration, but chiefly to vaccination. They maintain that they have furnished the world a new proof of the efficacy of the preventive discovered by Dr. Jenner.

Last year there were approximately four thousand cases of smallpox in New York, an average of eighty cases a week. During the same year ten thousand persons were vaccinated each week. This year the working force was increased, and thirty thousand vaccinations a week were performed. Slowly but surely the plague yielded to this assault, and the number of new cases decreased week by week.

Last year the largest number of cases reported in any one week was during the seven days ended May 24, when 134 patients were reported. This year the outbreak reached its height during the week ended April 5, when seventy-five cases were reported. The work of vaccination was continued unremittingly during that month, May, June July and August, and they are still vaccinating five thousand persons a day, though the disease is no longer a menace. During June the total number of cases was 191, as against about 400 cases last year. In July there were 80 cases, while over 360 were reported last year, and up to August 16 last but eleven persons were afflicted, though last year during the same period there were 142. Since August 16 no cases have been reported in Manhattan, and but three cases in Brooklyn.

Two more weeks of hard work should eliminate the disease from Brooklyn, the health authorities think; but their vigilance will not be relaxed until cold weather sets in. A gratifying feature of the campaign for health is the decrease of smallpox in warm weather. When stamped out in summer it seldom makes headway in winter, and often disappears for years.

Not only has smallpox moved to the vanishing point, but New York's death rate has also been materially reduced during 1902. Up to August 16 there had been but 1,225 deaths in the city from

all causes, as against 1,514 during the same period last year. The death rate was 17.60, as against 21.19 in 1901. Manhattan's death rate was 17.76; Brooklyn, 16.87; that of the Bronx, 16.45; Queens, 19.97; Richmond, 24.34. These figures show that, irrespective of its population, New York is one of the healthiest cities in the country, and ranks in comparative mortality records with thousands of small towns and villages.

Typhoid Fever in Brooklyn.

The Health Board report for the week ending August 23 shows seventy-two cases of typhoid with eight deaths in Manhattan, and twenty-eight cases with ten deaths in Brooklyn. Dr. Raymond says he doubts the accuracy of the report of new cases in Brooklyn, and that he is satisfied many physicians fail to report cases of this disease when they discover them. The Health authorities have been unable to trace the origin and cause for the spread of the fever.

A New Disinfection Plant in Richmond Borough.

During the prevalence of smallpox on Staten Island last winter, considerable dissatisfaction was caused by the removal of smallpox patients to North Brother Island, and separating children from their parents. In consequence of this the foundations for a new disinfecting plant that is to be built by the city at the County Almshouse, Castleton Corners, are being laid. That structure will cost, complete, $18,000, and will be used for the purpose of cleansing the clothing and household goods of all persons suffering from contagious diseases in the borough of Richmond.

CALIFORNIA.—San Francisco, 360,000. Report for June: Deaths, 551; 106 under five years; annual death rate, 18.36. Deaths from specific febrile diseases, 31; diphtheria, 21; typhoid fever, 6; consumption, 69; other diseases of the respiratory system, 52; pulmonary tuberculosis, 81; pneumonia, 26; bronchopneumonia, 14; bronchitis, 5; cancer, 24.

Plague: Four more cases and deaths reported July 13, 18, 19, 20.

Los Angeles, 120,000. Report for July: Deaths, 172; 32 under five years; annual death rate, 14.33. Deaths from tuberculosis, 36, divided as follows: Natives of Los Angeles, 1; natives of the Pacific Coast outside of Los Angeles, 3; from other parts, 26; of the 36 deaths from tuberculosis 10 had lived here less than three months, 4 between three and six months, 2 between six and twelve months, 6 between one and five years, 2 between five

and ten years, 5 over ten years, 4 life, unknown, 3. Deaths from specific infectious diseases, 49; typhoid fever, 4; diphtheria, 2; pertussis, 2; cerebro-spinal fever, 4; cancer, 4.

COLORADO.—Denver, 133,859. Bureau of health report for June: Total number of deaths, 223; premature and still births, 8; cases of phthisis contracted elsewhere, 39; cases of phthisis contracted in Colorado, 3; cases of phthisis not stated, 0; death rate per 1,000 per annum, 17.84; death rate per 1,000 per annum, excluding phthisis contracted elsewhere, 14.72; deaths from phthisis, 42; meningeal tuberculosis, 8; pneumonia, 19; typhoid fever, 5; measles, 7; whooping-cough, 3; entero-colitis, 26; cancer, 4.

CONNECTICUT.—By Mortality Reports received there were 1,394 deaths during the month of July. This was 333 more than in June, and 97 more than in July of last year, and 55 more than the average number of deaths in July for the five years preceding. The death rate was 19.9 for the large towns, for the small towns 14.5, and for the whole State 18.5. The deaths reported from infectious diseases, including diarrhœal, were 527, being 37.7 per cent. of the total mortality.

DISTRICT OF COLUMBIA, 278,880—86,467 colored.—Of the deaths for the week ended August 16 there was a decrease of over 15 per cent. in the number of deaths in the District as compared with the preceding week. The mortality amounted to 85, representing a death rate of 15.1. In the previous week it was 101 (death rate 17.9), and in the corresponding period of last year 115 (death rate 21.4). Of those who died last week 41 were white, affording a death rate of 10.5, and 44 colored, death rate 25.5. There were 6 fatal cases of typhoid fever as compared with 12 in the previous week, and 8 in the same period of last year. Deaths from consumption fell from 14 to 7. Those among children under 5 years of age decreased from 36 to 31, and among those under 1 year old from 26 to 22. The deaths by violence were 3, one of which was suicidal by gunshot in brains and two accidental, both by extensive burns by fire.

At the close of the last report there were 6 cases of smallpox under treatment in the hospital. No new case occurred during the week, nor were any of the inmates of the hospital discharged.

Of typhoid fever 247 cases were under medical supervision at

the end of the week. New cases numbering 89 were reported and 40 were discharged, leaving 296 cases under treatment.

Cases of scarlet fever to the number of 11 were in quarantine by the report of the former week. No new case developed, and 3 being discharged, 8 cases remained, with warning cards in 5 premises.

At the close of last report there were 8 cases of diphtheria in quarantine. New cases numbering 3 were reported, and 2 were discharged, leaving 9 cases in 7 premises.

SIGHT AND HEARING OF SCHOOL CHILDREN.

ILLINOIS.—The State Board of Health has issued a circular with this heading to county superintendents of schools, stating that:

At a meeting of the Illinois State Board of Health, held in Chicago in July, 1900, it was deemed essential that some action be taken by the Board to protect the sight and hearing of the school children of the State, and a committee was appointed to consider the matter at length, and to report to the Board at a later meeting.

This Department made a systematic examination of the vision and hearing of the school children of the city, and found that 32 per cent. of the boys and 37 per cent. of the girls in the schools had defective vision, falling two-thirds below the normal, and that this number grows steadily larger from the beginning to the end of school life. Also, that many apparently dull pupils are only so because they are suffering from defects of vision. The committee was impressed with methods that they investigated, and a plan of examination was strongly urged, the committee recommending that these examinations be made in every school in the State of Illinois. The Board unanimously approved the recommendations of the committee.

The plan of examination proposed consists of a brief and simple examination of each child's eyes and ears once a year by the school teachers. The teacher simply asks ten questions, which disclose the existence of important eye or ear diseases. The examination is so simple that the teacher can easily examine a child in five minutes. If the questions and answers disclose the existence of some eye or ear defect in the pupil, the parent is notified by a card of warning. This card merely states than an eye or ear defect is believed to exist, and the parent is earnestly requested that the matter be attended to, as the existence of such defects necessarily retards school progress, and militates against the well being of the

child. Action by parents is not compulsory, but no parent is apt to disregard this advice. If medical advice is necessary, the parents are, of course, at perfect liberty to consult any physician whose services they desire.

This plan is now in use quite generally throughout the United States, and in the Government schools of Southern India, and is giving satisfaction wherever used. In Connecticut the examination is required by law.

Chicago, 1,758,025. Measured by the mortality the typhoid fever "storm center" is in the area south of Lake Street, west and north of the south branch of the river and east of Western Avenue. This area is supplied by the Harrison Street and the Twenty-Second Street pumping stations, with a mixed water from the four-mile, the Carter H. Harrison and the Chicago Avenue tunnels, the three best sources, usually, of the city water supply, ranking in the order given.

During the first four months of the year this mixed supply averaged 81.4 per cent. "good," the Hyde Park supply 66.7 per cent., and the Lake View 88.3 per cent. "good." Since the 1st of May these proportions have materially changed, but the mixed supply has been the least affected relatively, the averages being 75, 72 and 63 per cent. "good" for the mixed, the Hyde Park and the Lake View supplies respectively. And yet, in the area furnished with this best water and containing less than one-fifth the total population of the city, seventy-three, or nearly 57 per cent. of the 129 August typhoid deaths have occurred.

Obviously, there is some other cause for this excessive disproportion than a polluted water. In the areas supplied with the worse water of the Hyde Park tunnel there have been but eleven deaths in a population of approximately 230,000, or more than one-eighth the total; in the area supplied with the still worse water of the Lake View tunnel there have been but two deaths out of an approximate population of 152,000, or one-twelfth the total.

The malaria prevalence, however, adds another complication to the typhoid situation. The presence of the malaria parasite has been demonstrated by the laboratory workers in patients presenting symptoms of typhoid and being treated for this latter disease. It is not out of place to suggest the advisability of a bacterial examination wherever there is doubt as to whether a case is typhoid or malarial, or, possibly, both.

There were but thirteen more deaths last week than the week previous, the principal increase, aside from the typhoid deaths, be-

ing in heart diseases—thirty-five, as compared with twenty-three the week before and twenty-five in the corresponding week of 1901. Compared with this latter week the annual death rate last week was 3.7 per cent. lower than a year ago.

Four cases of smallpox were removed to the isolation hospital during the week, the first since Aug. 7. Of these only one was a resident, the others arriving here with the disease from Cleveland, Ohio, Merrytown, Wis., and Covington, Ky. None had ever been vaccinated.

Statement of mortality for the week ended Aug. 23, 1902, compared with the preceding week and with the corresponding week of 1901. Population, 1902, 1,820,000; 1901, 1,758,025:

	Aug. 23, 1902.	Aug. 16, 1902.	Aug. 24, 1901.
Total deaths, all causes.....	524	511	526
Death rate per annum per 1,000...	15.00	14.64	15.59
By sexes—			
Males	286	289	290
Females	238	222	236
By ages—			
Under 1 year	133	133	160
Between 1 and 5 years.....	74	65	72
Over 60 years	72	80	76

INDIANA.—The July bulletin of the Indiana State Board of Health reports 2,907 deaths in July, a rate of 13.6. In the corresponding month of last year the number was 3,162, rate 14.8. By ages the deaths were: Under 1 year, 583, or 21.1 per cent.; 1 to 5 years, 334, or 12.1 per cent.; 5 to 10 years, 40, or 1.4 per cent.; 65 years and over, 689, or 25 per cent. From other important causes: Pulmonary tuberculosis, 292, rate, 136.9 in 100,000; other forms of tuberculosis, 23, rate 10.7; typhoid fever, 83, rate 38.9; diphtheria, 7, rate, 3.2; scarlet fever, 6, rate, 2.8; measles, 6, rate, 2.8; whooping-cough, 15, rate, 7; diarrhœal diseases, 433, rate, 203; pneumonia, 60, rate, 28.1; cerebro spinal meningitis, 15, rate, 7; influenza, 7, rate, 7.2; puerperal septicemia, 6, rate, 2.8; cancer, 125, rate, 58.6; violence, 143, rate, 66.5; smallpox, 15, rate, 7.

The city deaths numbered 1,230, rate, 16.9, and those of the country, 1,677, rate, 11.9. The city rate exceeded the rate of the State by 3.3, and the country rate was less by 1.7. The city and country

rates per 100,000 of population compare as follows for certain diseases: Tuberculosis, city, 166.4, country, 121.6; typhoid fever, city, 44, country, 26.2; pneumonia, city, 35.7, country, 24.1; diarrhœal diseases, city, 344.8, country, 181.4; influenza, city, 5.5, country, 2.1; cancer, city, 81.1, country, 46.9; violence, city, 81.1, country, 59; smallpox, city, 1.3, country, 9.9. Indianapolis reported 269 deaths, rate, 18.7, and Evansville, the second city, reported 62 deaths, rate 12.3.

Sickness.—Smallpox for eighteen consecutive months has been the most prevalent disease. The cases in July numbered 502 in 46 counties with 15 deaths; in June the cases numbered 570 in 60 counties, with 3 deaths. Twelve of the deaths occurred in Knightstown, in Henry County, 1 in Laporte County, and 2 in Martin County. The cases of smallpox numbered 49, of which 19 were confluent, and 12 of these died. Not one of the persons having confluent smallpox and not one that died had ever been vaccinated. The trade of the town was paralyzed for over six weeks. Diarrhœa was the second most prevalent disease in July, then in the following order come cholera morbus, dysentery, rheumatism, typhoid fever, cholera infantum, tonsillitis, bronchitis, measles, scarlet fever, influenza, whooping-cough, pneumonia, erysipelas, diphtheria, puerperal fever, cerebrospinal meningitis.

There was undoubtedly more typhoid fever in July than usual. The deaths from the disease numbered 83, and in the corresponding month last year they numbered 67, and in addition it appears sixth in prevalence this month, and tenth in the same month last year. Possibly the abundant and frequent rains have had some influence in spreading the disease.

IOWA.—The State Board of Health Bulletin reports infectious diseases for June: Diphtheria in 11 localities; measles, 5; scarlet fever, 12; smallpox, 33; typhoid fever, 1; whooping-cough, 2.

Dr. J. W. Clegg, of Columbus Junction, reports twelve cases of smallpox at a railroad camp in Union township, Louisa County. Nine of the cases had never been vaccinated; two were vaccinated four and six days previous to the initial fever, which had no influence upon its course. One was vaccinated thirty years before, only, and while the primary fever, head, stomach and back symptoms were quite severe, the eruption was very slight and no secondary fever. The lesson to the public has been that vaccination *does* protect. Those who were vaccinated early and a "take" obtained escaped the disease. Those who had been previously vac-

cinated and revaccinated failed to "take" and were immune to smallpox.

Davenport, 30,000. Report for year ending Feb. 28, 1902: 530 against 473 in preceding year. Death rate, 15.03. By classes the deaths were: Infectious (including 60 from tuberculosis), 112; digestive (including 8 from cholera infantum), 54; respiratory (including 18 from pneumonia), 50; circulatory (all but 10 being diseases of the heart), 71; nervous (including 20 from apoplexy and 16 from paralysis), 83; genito-urinary (including 10 from Bright's disease), 21; cancerous, 25; developmental and unclassified (including 9 from isolation and 44 from old age), 87; accident, 17; suicide, 8; homicide, 2; still births, 19.

KANSAS.—The Secretary of the State Board reports *smallpox* for the month of July, an aggregate of 72 cases in ten localities, with 1 death.

LOUISIANA (New Orleans), 305,000 (81,500 colored).—Mortality report for July, 507—226 colored. Death rates: White, 15.08; colored, 32.27: 19.94. Deaths from pulmonary tuberculosis, 88—49 colored; typhoid fever, 13; intermittent fever, malarial cachexia, 12; diphtheria, 2; tetanus, 10; cancer, 14.

MASSACHUSETTS (Boston), 573,572.—Report for June: Deaths, 790; under five years, 198; death rate, 16.52; deaths from typhoid fever, 4; smallpox, 15; measles, 5; scarlatina, 10; whooping-cough, 9; diphtheria and croup, 15; tubercle of the lungs, 102; bronchitis, acute, 11, chronic, 8; broncho-pneumonia, 24; pneumonia, 24; cancer, 29.

MICHIGAN.—The Secretary of the State Board reports for July, 1902, compared with the preceding month, diarrhœa, cholera morbus, typhoid fever, dysentery, erysipelas, cholera infantum and whooping-cough were prevalent; and measles, influenza, inflammation of kidney, pleuritis, pneumonia and diphtheria were less prevalent. For the month of July, 1902, compared with the average for July in the 10 years, 1892-1901, measles, whooping-cough, scarlet fever, pneumonia and smallpox were more than usually prevalent; and intermittent fever, inflammation of kidney, dysentery, cholera infantum, inflammation of bowels, remittent fever and diphtheria were less than usually prevalent. Of the most dangerous communicable diseases, meningitis was reported

present at 11 places; diphtheria at 51 places; whooping-cough at 52 places; typhoid fever at 85 places; scarlet fever at 100 places; smallpox at 113 places; measles at 118 places, and consumption at 257 places. Meningitis was reported at 1 place more; diphtheria at 1 place less; whooping-cough at 9 places more; typhoid fever at 12 places more; scarlet fever at 19 places less; smallpox at 8 places less; measles at 5 places more, and consumption at 22 places more, in the month of July, 1902, than in the preceding month. Deaths reported to the Department of State for the month of July, 2,347—113 more than in June. The death rate was 11.3 per 1,000.

There were 509 deaths of infants under 1 year of age; 186 aged 1 to 4 years, inclusive, and 625 deaths of persons aged 65 and over. Important causes of death were as follows: Pulmonary tuberculosis, 152; other forms of tuberculosis, 28; typhoid fever, 37; diphtheria and croup, 26; scarlet fever, 10; measles, 13; whooping-cough, 26; smallpox, 4; pneumonia, 102; tetanus, 4; lightning, 2; diarrhœa and enteritis (under 2 years), 200; cancer, 140; accidents and violence, 235.

MINNESOTA.—Minneapolis, 240,000. Registry of deaths for June, 1902: Deaths, 186—42 under five years; death rate on national census, 202,718; deaths from typhoid fever, 4; tubercle of the lungs, 22; pneumonia, 11; broncho-pneumonia, 5; diphtheria, 6; cancer, 10.

St. Paul, 170,000. Report for June, 1902: Deaths, 110—33 under five years; death rate, 7.76; deaths from diphtheria and croup, 7; tuberculosis of the lungs, 12; pneumonia, croupous, 10; cancer, 3.

MISSOURI.—St. Louis, 598,000 (38,000 colored). Report for June, 1902, 790—249 under 5 years of age. The annual death rate per 1,000 during the month was 15.26, this being based on a population of 621,000, computed on census figures of 1900 (575,200) at the rate of four per cent. annual increase. During the month there were 114 less deaths than the previous month; 58 certificates were issued for deaths occurring outside the city limits; these are not included in the monthly statement. Percentage of deaths in eleemosynary and other institutions of a public character to total mortality, 14.05. Percentage of deaths in city institutions to total mortality, 26.82. White population, 582,000; mortality rate per thousand, 13.87. Colored population, 39,000; mortality rate per 1,000, 30.00. Deaths from zymotic diseases, 129;

smallpox, 3; scarlatina, 6; diphtheria, 4; whooping-cough, 17; typhoid fever, 7; diarrhœa (under 5 years), 64; consumption, 106; bronchitis, 14; pneumonia, 32; cancer, 26.

NEW HAMPSHIRE.—Sanitary bulletin for July (quarterly) reports that at the present time there are about a dozen known cases of smallpox in New Hampshire, limited to four localities, all thoroughly isolated so as not to endanger the public in the least, and most of the cases are of a mild type. This disease is so promptly and properly handled that the appearance of a case in a town makes but little excitement, as the public understand that all cases are immediately isolated, exposed persons kept under observation for a given period, and these acts, coupled with the fact that most of our communities are now well vaccinated, tend to calm the public mind with reference to the spread of this disease. But for the occasional importation of a case of smallpox, the disease would not exist in this State.

NEW JERSEY.—Hudson County (Jersey City and environs), 409,810. Report for June, 1902: Deaths, 620—243 under five years; death rate, 18.2; deaths from smallpox, 21; diphtheria and croup, 23; typhoid fever, 4; scarlet fever, 8; all zymotic diseases, 99; consumption, 49; bronchitis, 9; pneumonia, 44.

Newark, 255,000. Report for the week ending August 23, 1902: Contagious and infectious diseases reported, 46, being an increase over the preceding week of 14; deaths from contagious and infectious diseases, 17; deaths from general diseases, 86; deaths from violence, accidents and suicide, 4; total number of deaths reported, 107; death rate, 21.81.

NORTH CAROLINA.—Bulletin of State Board reports for June, 1902: Twenty-five towns with an aggregate population of white, 81,600; colored, 55,650; 137,250. Aggregate deaths, 282—130 colored; 101 under 5 years; death rates, white, 22.5; colored, 28.0: 23.9.

Deaths from typhoid fever, 7; malarial fever, 8; consumption, 45; diarrhœal diseases, 76; smallpox reported in twelve counties, an aggregate of 66 cases, no deaths.

OHIO.—State Board of Health bulletin of cases—deaths—of infectious diseases during eight weeks ended July 19, 1902: Fifty-eight places, with an aggregate population of 1,074,345: Diph-

theria and croup, 239 cases, 22 deaths; scarlet fever, 296 cases, 47 deaths; typhoid fever, 255 cases, 47 deaths; whooping-cough, 87 cases, 7 deaths; measles, 1,268 cases, 11 deaths; smallpox, June 1 to July 24, 952 cases, 61 deaths.

Cleveland, 400,000. Report for June, 1902: Total deaths, 452—151 under five years of age. Annual death rate, 13.56. Deaths from consumption, 43; pneumonia, 31; broncho-pneumonia, 19; typhoid fever, 13; smallpox, 28; diphtheria and croup, 9; cancer, 15.

PENNSYLVANIA.—Philadelphia, 1,293,697. Report for week ended August 16, 1902: Deaths, 446—150 under 5 years. Deaths from consumption, 46; cholera infantum, 34; typhoid fever, 11; cancer, 18.

Pittsburg, 346,000. Report of the Bureau of Health for week ended August 16, 1902: Deaths, 130—62 under five years. From diphtheria and croup, 6, typhoid fever, 9; diarrhœa, 26; gastro-enteritis, 9; pneumonia, 5; bronchitis, 1; consumption, ?; cancer, 1.

TENNESSEE.—Memphis, 110,000—49,000 colored. Report of deaths for June, 1902, white, 75, colored, 102; 177—56 under 5 years. Death rates, white, 11.79; colored, 19.58: 15.26. Deaths from typhoid fever, 5; diphtheria and croup, 2; consumption, 28; diarrhœa and enteritis (under 2 years), 33; cancer, 1.

Nashville, 81,320—30,192 colored. Board of Health report for July, 1902. Deaths, 168—69 colored; under 5 years, 50. Death rates, white, 20.88; colored, 27.42: 23.31. Deaths from typhoid fever, 6; intermittent fever, malarial cachexia, 10; scarlet fever, 4; consumption, 22; cancer, 4.

UTAH.—Salt Lake City, 70,000. Report for June, 1902: Deaths, 75—29 under five years. Annual death rate, 2.72. Deaths from consumption, 2; diphtheria, 3; scarlet fever, 3.

WASHINGTON.—Seattle, 115,000. Report for June, 1902: Deaths 59—11 under five years; death rate, 6.10. Deaths from consumption, 5; pneumonia, 13; typhoid fever, 1; diphtheria, 2; cancer, 4.

WISCONSIN.—Milwaukee, 300,000. Report for June, 1902:

Deaths, 294—102 under five years; death rate, 11.95. Deaths from measles, 9; diphtheria, 5; tubercular diseases, 31; cancer, 19.

CUBA.—Havana, 275,000—73,000 colored. Carlos J. Finlay, chief sanitary officer, reports mortality of the City of Havana and the town of Guanabacoa, for June, 1902, 540—163 under 5 years of age. Death rate, 23.56. Deaths from typhoid fever, 9, an increase of 5 over preceding month. No case of yellow fever has occurred, and, so far as known, none in any other part of the Republic. Two cases, both of them of a mild character, were reported from Vera Cruz. The first occurred in a steerage passenger who came in on the Steamship "León XIII," having sailed from Vera Cruz on the 24th of May, touching at Progreso, and arriving at Havana on the 27th. On the day of arrival this passenger was attacked with malarial fevers, which lasted three days, and on the 31st of May his attack of yellow fever set in. The Commission of experts confirmed the diagnosis, and attributed the source of infection to Vera Cruz, being of opinion that it was a case of eight days' incubation, perhaps prolonged in consequence of the malarial manifestations. The other case occurred likewise in a steerage passenger who came on the Steamship "Esperanzo," having sailed from Vera Cruz on the 31st of May, and arriving at Havana on the 4th day of June. This patient was attacked with yellow fever on the first day of his arrival. Both of these vessels had shipped a cargo of cattle at Vera Cruz. Under such circumstances, if any contaminated yellow fever mosquitoes happen to be introduced with the cattle it is quite conceivable that those insects may draw their subsistence during the trip from the blood of the animals, only biting the non-immune passengers at the time when the cattle is being landed at the port of arrival. Hence the necessity of exacting five days' detention at the Immigration Camp for the non-immunes arriving on such vessels from infected ports.

CHOLERA IN THE PHILIPPINES.

More soldiers in the United States army in the Philippines have died from Asiatic cholera in the last few months than from all other diseases combined. The epidemic is now reported to have been checked by the rainy season, which is setting in at this time, but the reports are only beginning to arrive of the deaths which were caused by it a month ago. A report from General Chaffee received to-day states that between June 25 and July 10 thirty-five

soldiers died from the disease. Deaths from other causes during the same period were: Dysentery, 17; tuberculosis, 2; malarial fever, 5; other causes, 10; total, 34.

Action has been taken in Manila looking toward the demolition of numerous native houses where the cholera has prevailed and where sanitation is impracticable. The natives will be housed by the Government while the demolition of their homes is in progress, and will be compensated for their loss.

CHOLERA SPREADS TO JAPAN.

Victoria, B. C., August 13.—According to advices received here yesterday, the epidemic of cholera has spread from Manila and the ports of China to Japan. Up to the middle of July cases and deaths had been reported officially as follows:

Tokio, 4 cases, 3 deaths; Saga, 75 cases, 42 deaths; Nagasaki, 3 cases, 3 deaths; Fukuoka, 102 cases, 73 deaths; Fukuoka Jail, 27 cases, 12 deaths; Formosa, 19 cases, no deaths; total, 231 cases, 142 deaths.

The number of cases in Fukuoka Ken up to July 16 was 121, of which 93 were fatal.

A Tien-Tsin dispatch of July 11 states that the number of cases in the city up to that date was 1,049, of which 764 were fatal. The total in the northern section was 1,015, with 593 deaths. The epidemic is abating.

CHOLERA IN CHINA.

In Hong Kong, from the first of the outbreak to August 6 there had been 523 cases, six of the patients being Europeans, and 511 deaths, of which four were Europeans.

In Tien-Tsin the last report placed the number of cases for the year at 1,049 and 764 deaths within the city walls, and 1,015 cases and 593 deaths outside the city walls. In other places in China the proportion of cases and deaths is just as great. A dispatch says hundreds have died in Java.

BOOK REVIEWS.

SEWAGE WORKS ANALYSES.—By GILBERT J. FOWLER, M.Sc. (VICT.) F.I.C., Superintendent and Chemist, Manchester Corporation Sewage Works. 12mo, vii+135 pages, 11 figures. Cloth, $2.00. Order through your bookseller, or copies will be forwarded postpaid by the publishers on the receipt of the retail price. JOHN WILEY & SONS, 43 and 45 East Nineteenth Street, New York City, 1902.

Prefatorily: This book has been written in response to several requests for an account of the methods of analysis in use in the laboratory of the Manchester Corporation Sewage Works.

The methods here described are such as a considerable experience has shown to be capable of being rapidly executed, and of giving results of an accuracy amply sufficient for practical requirements.

It is a book of practical utility on a relatively new and increasingly important subject—the safety of sewage. The direct determination of the amount and character of the suspended matters in raw sewage has been long recognized as a difficult problem by the fact that much of it is of such a character that it escapes collection when the ordinary samples are taken. Heavy sandy detritus and floating garbage must therefore be separately collected, weighed in bulk, and one or more as nearly as possible average samples taken for a proximate analysis. The details of all the processes in the work indicated are lucidly described with appropriate diagrams and illustrations comprehending the chemical control of sewage purification processes; the determination of absorbed oxygen; the determination of ammonia; the determination of nitrites and nitrates; the determination of dissolved oxygen; the determination of chlorine, acidity and alkalinity, and iron compounds; the determination of solids in solution and suspension, and the analysis of gases from the septic tank and from bacterial filters. Appended are tables of atomic weights; the metric system; conversion table—grains per gallon, quantity in one million gallons, parts per 100,000; conversion table for recording quantity of sewage dealt with per given area, and useful data.

MASSAGE AND THE ORIGINAL SWEDISH MOVEMENTS—THEIR APPLICATION TO THE VARIOUS DISEASES OF THE BODY.—Lectures

before the training schools for nurses connected with the Hospital of the University of Pennsylvania, German Hospital, Woman's Hospital, Philadelphia Lying-in Charity Hospital, the Philadelphia Polyclinic and College for Graduates in Medicine, and the Kensington Hospital for Women, Philadelphia.—By KURRE W. OSTROM, from the Royal University of Upsala, Sweden.—Fifth Edition, Revised and Enlarged, with 115 illustrations. 12mo. Pp. 180. Price $1.00. Philadelphia, P. Blakiston's Son & Co.

The fifth edition of this excellent book, the fourth edition of which was reviewed in these pages only a little more than two years ago, is striking evidence of its value. It continues to maintain its prominence on the subject treated of.

THE SELF-INSTRUCTOR IN PHRENOLOGY AND PHYSIOLOGY; WITH OVER ONE HUNDRED NEW ILLUSTRATIONS, INCLUDING A CHART FOR THE USE OF PRACTICAL PHRENOLOGISTS.—By O. S. and L. N. FOWLER. Revised by NELSON SIZER, President of the American Institute of Phrenology. 12mo. Pp. 192. New York, Fowler and Wells Co., 27 E. 21st Street.

This book has been long the accepted authority and hand book of the votaries and students of phrenology. It comprehends the principles upon which phrenology is based and notable attestations to its usefulness.

SPIRITISM, HYPNOTISM AND TELEPATHY AS INVOLVED IN THE CASE OF MRS. LEONORA E. PIPER AND THE SOCIETY OF PSYCHICAL RESEARCH.—By CLARK BELL, ESQ., LL.D., President of the Medico-Legal Society.—And the DISCUSSION before the New York Medico-Legal Society and Its Psychological Section. New York: Published by *Medico-Legal Journal.*

A brochure of 169 pages with portraits of the authors: Clark Bell, Esq., LL.D.; Thomson Jay Hudson, LL.D.; John Duncan Quackenbos, M.D.; Judge Abram H. Dailey; Hon. Luther R. Marsh; H. C. Wright, Esq.; Eleanor Gridley; T. D. Crothers, M.D.; Alexander Wilder, M.D.; Wm. Lee Howard, M.D.; Prof. W. Xavier Sudduth; Mrs. Mary A. Lease; Rev. J. Minot Savage; M. Louise Thomas; Richard Hodgson, LL.D.; Prof. J. H. Hyslop; Rev. Geo. H. Hepworth; C. Van D. Chenoweth; Leonora E. Piper; F. E. Daniel, M.D., and their remarks.

PROCEEDINGS OF THE SECOND CONVENTION OF WEATHER BUREAU OFFICIALS, HELD AT MILWAUKEE, WIS., AUGUST 27-29, 1901. Edited under the direction of WILLIS L. MOORE, Chief of

U. S. Weather Bureau, by JAMES BERRY, Secretary of the Convention, and W. F. R. PHILLIPS. Bulletin 31, U. S. Department of Agriculture, Washington, D. C.

A brochure of two hundred and forty-six pages, comprising many papers of interest and of practical value to all who have occasion to utilize the knowledge of climates and weather forecasts so far as ascertained by expert observers.

HURRICANES: ESPECIALLY THOSE OF PORTO RICO AND ST. KITS.— By WILLIAM H. ALEXANDER, Observer, Weather Bureau. Bulletin No. 32, U. S. Department of Agriculture, Washington, D. C. Prepared by direction of Willis L. Moore, Chief of the U. S. Weather Bureau.

An interesting and lucid description of the conditions of the atmosphere in general, with relation to storms, cyclones, hurricanes, etc., and of the West Indies in particular,—above all, with regard to Porto Rico and St. Kits, to whose inhabitants the data presented are of exceptional value.

PUBLICATIONS RECEIVED.

Migrated Ovarian and Parovarian Tumors, Geo. M. Edebohls, M.D., New York.

Restoration of U. S. Quarantine, Arguments and Appeals for, at Tortugas, Fla.: A Memorial to Congress.

Principles of Hydrotherapy, Otto Lerde, M.D., New Orleans, La.

Epistaxis: Its Causation and Treatment, Gordon King, M.D., New Orleans, La.

Hæmorrhoids: Causation and Treatment, Julius Lazard, M.D., New Orleans, La.

Gelatin as a Styptic, J. C. Willy, M.D., New Orleans, La.

CONTEMPORARY LITERATURE.

THE OUTLOOK IN THE PHILIPPINES.

The American love of freedom has been somewhat confused in its expression, owing, also, to the unexpected and most lamentable condition of affairs following our occupancy of the Philippines. Concerning this we will only say, at the moment, that American ideals have had recently very marked expression in two notable deliverances: one, the noble and impassioned speech of the vener-

able Senator Hoar, in the Senate of the United States, which was listened to without interruption and with the most profound attention not only by sympathizers with its sentiments, but by those who strongly differed. The other notable deliverance was that by President Roosevelt, at Arlington, where he did not hesitate to hold out the idea not merely of increasing self-government, but of possible national independence—when the people should be fitted for it. Surely, as President Schurman has said, "the ideas and sentiments awakened by the very name of Theodore Roosevelt are an augury of good hope and promise to the Filipinos."

If America has, by accident, been placed in a false position with regard to the desire for nationality among the Filipinos, the good will of our people, as shown in the beneficent and educational administration of Governor Taft and his associates, along with such assurances as those volunteered by our Chief Executive, may make the final decision of the inhabitants favorable to some closer union than would be implied in the friendliest independence. But the more successful our efforts to educate and inform, the quicker will approach the time when the Filipinos will themselves be given a voice by liberty-loving Americans in the decisions as to their permanent status.—*The August Century* (editorial).

SCHOOL GARDENS.

Do you wonder at the perplexity of the little girl who, upon being asked by her teacher, "How is it, my dear, that you do not understand this simple thing?" replied, with a perplexed look, "I do not know, indeed, but I sometimes think that I have so many things to learn that I have not time to understand."

Contrast with this the spirit of the boy mentioned in the following paragraph:

In a school garden properly conducted children become so deeply interested in accomplishing a certain, definite, near, and understandable result—the raising of flowers and vegetables—that they learn to work hard without being conscious of effort. That is a matter of the very highest importance in educating children. I said to a boy, who is one of the most indefatigable workers I ever saw, "Why, you are the hardest-working boy I know." "Yes," he said, "I know it; but it's fun, just the same."—From *School Gardens*, by Dick J. Crosby, of the United States Department of Agriculture, in "The Outlook," August 2.

WALKING AS AN EXERCISE.

The Latin advice, "*Post coenam stabis seu passus mille meabis,*" I modify by resting after every meal. It is pernicious to strain an overloaded stomach, and I would rather go without food than without walk. Obstacles increase the pleasure, vexations cannot dampen the ardor for the luxury I covet most. Rain or shine, in every degree of heat or cold, I go, when feasible, several hours a day—twice as long when my spirits are depressed. In warm weather it may increase perspiration, but that is a discomfort which must willingly be borne. H. W. Beecher said: "There are many troubles which you cannot cure by the Bible or hymn book, but which you can cure by perspiration and fresh air." External gymnasiums are scarce; golf and most other outdoor plays require some exertion of the brain. But when we walk we can give the mind a complete rest, and graduate our effort according to our strength. Let those who are feeble walk, at an easy gait, half a mile—when their muscles strengthen, a mile—and they will soon find the exercise a pleasure instead of a penance; it will dispel the gloom which they hugged, and their aches will vanish. Air is man's element; he has no more excuse to refrain from walking through it than a fish would have from swimming in water.—From *Amenities of City Pedestrians*, by Louis Windmüller, in the "American Monthly Review of Reviews" for August.

"The Cosmopolitan Magazine" announces that it has obtained for the year 1902 the exclusive American rights to H. G. Wells' work and an option on a like privilege in 1903. By way of preface to the publication of Mr. Wells' "Mankind in the Making," a series of papers that is sure to excite even wider comment than did "Anticipations" from the same pen, the August "Cosmopolitan" publishes an interesting biographical sketch and character study of Mr. Wells.

THE DELINEATOR, for September, always on time, is, as usual, brimful of practical new styles, superbly illustrated.

PROCTOR'S PLANS FOR THE EARLY AUTUMN AT NEW YORK'S MOST POPULAR PLAYHOUSES comprise an entirely new equipment of scenery and fittings. New carpets will be laid upon the orchestra floors, new draperies hung, and the interior decorations will be new and artistic throughout. Frederic Bond, general stage director of the Proctor Stock Co., will head the permanent organization which will

have possession for the presentation of the best comedies with vaudeville interludes between acts. Meanwhile, the Fifth Avenue and One Hundred and Twenty-fifth Street are open and prosperous. The Twenty-third Street is wholly given over to the best vaudeville, and the performances are continuous from noon until midnight. Artificial aids are employed to keep the Proctor theatres cool and comfortable, and a more agreeable place to spend an afternoon or evening is not to be found anywhere.

MEMORYBILLIOUS VISIT TO PARIS.*

PARIS, December 10, 1823.

MY DEAR MR. BULL.—Having often heard travelers lament not having put down what they call *memorybillious* of their journies, I was determined while I was on my *tower,* to keep a *dairy* (so called from containing the cream of one's information), and record everything which recurred to me—therefore I begin with my departure from London.

Resolving to take time by the *firelock,* we left Montague Place at 7 o'clock by Mr. Fulmer's pocket thermometer, and proceeded over Westminister Bridge to *explode* the European Continent. I never pass Whitehall without dropping a tear to the memory of Charles the Second, who was decimated, after the rebellion of 1745, opposite the Horse Guards—his memorable speech to Archbishop Caxon rings in my ears whenever I pass the spot. I reverted my head and affected to look to see what o'clock it was by the dial, on the opposite side of the way. It is quite impossible not to notice the improvements in this part of the town, the beautiful view which one gets of Westminster Hall and its curious roof, after which, as everybody knows, its builder was called William Roofus.

Amongst the lighter specimens of modern architecture is Ashley's *ampletheatre,* on your right, as you cross the bridge (which was built, Mr. Fulmer informed me, by the Court of Arches and House of Peers). In this ampletheatre there are Equestrian performances, so called because they are exhibited *nightly* during the season.

The toll at the Marsh Gate is *ris* since we last came through—it was here we were to have taken up Lavinia's friend, Mr. Smith,

*This jeu d'esprit is attributed to Theodore Hook.

who has promised to go with us to Dover—but we found his servant instead of himself with a *billy,* to say he was sorry he could not come, because his friend, Sir John Somebody, wished him to stay and go down to *Poll* at Lincoln. I have no doubt that this *Poll,* whoever she may be, is a very respectable young woman, but mentioning her by her Christian name only in so abrupt a manner had a very unpleasant appearance at any rate. Nothing remarkable occurred till we reached the *Obstacle* in St. George's Fields, where our attention was arrested by those great Institutions—the school for the *Indignant* Blind, and the *Misanthropic* Society for making shoes, both of which claim the gratitude of the nation. At the bottom of the lane, leading to Peckham, I saw that they had removed the *Dollygraph* which used to stand upon the declivity to the right of the road—the Dollygraphs are all to be superseded by *Serampores.*

When we came to the Green Man at Blackheath, we had an opportunity of noticing the errors of former travelers, for the heath is green and the man is black. Mr. Fulmer endeavored to account for this, by saying, that Mr. Colman has discovered that Moors being black, and heaths being a kind of moor, he looks upon the confusion of words as the cause of the mistake. N. B.—Mr. Colman is the *itinerary* surgeon, who constantly resides at St. Pancras. As we went near Woolwich, we saw at a distance the Artillery Officers on a common, a-firing away in mortars like anything. At Dartford they make gunpowder—here we changed horses. At the inn we saw a most beautiful *Roderick Random* in a pot covered with flowers—it is the finest I ever saw, except those at Dropmore. When we got to Rochester, we went to the Crown Inn and had a cold *collection*—the charge was *absorbant.* I had often heard my poor dear husband talk of the influence of the Crown, and the Bill of *Wrights,* but I had no idea what it really meant, till we had to pay one.

As we passed near Chatham, I saw several *Pitts,* and Mr. Fulmer showed me a great many buildings—I believe he said they were *fortyfications,* but I think there must have been fifty of them; he also showed me the Lines at Chatham, which I saw quite distinctly, with the clothes drying on them. Rochester was remarkable in King Charles's time, for being a very witty and dissolute place, as I have read in books.

At Canterbury, we stopped ten minutes to visit all the remarkable buildings and curiosities in it, and about its neighborhood; the church is most beautiful. When Oliver Cromwell conquered

William the Third, he *perverted* it into a stable—the stalls are now standing. The old *Virgin,* who showed us the church, wore buckskin *breaches and powder*—he said it was an archypiscopal sea—but I saw no sea, nor do I think it possible he could see it either, for it is at least seventeen miles off. We saw Mr. Thomas à Beckett's tomb—my poor husband was extremely intimate with the old gentleman, and one of his nephews, a very nice young man, who lives near Golden Square, dined with us twice, I think, in London. In Trinity Chapel is the monument of Eau de Cologne, just as it is now exhibiting at the *Diarrhœa* in the Regent's Park. It was late when we got to Dover. We walked about while our dinner was preparing, looking forward to our snug tête-à-tête of three. We went to look at the sea—so called, perhaps, from the uninterrupted view one has when upon it. It was very curious to see the locks to keep the water here and the *keys* which are on each side of them, all ready, I suppose, to open them if they are wanted. We were awake with the owl next morning, and a-walking away before eight, we went to see the castle—which was built, the man told us, by Seizer, so called, I conclude, from seizing everything he could lay his hands upon. The man said, moreover, that he had invaded Britain and conquered it, upon which I told him, that if he repeated such a thing in my presence again, I should write to the Government about him. We saw the inn where Alexander, the *Autograph* of all the Russians, lived when he was here —and as we were going along, we met twenty or thirty dragons mounted on horses, and the ensign who commanded them was a friend of Mr. Fulmer's—he looked at Lavinia and seemed pleased with her *Tooting assembly*—he was quite a "sine qua non" of a man, and wore tips on his lips, like Lady Hopkins' poodle. I heard Mr. Fulmer say he was a son of *Marrs;* he spoke as if everybody knew his father, so I suppose he must be the son of the poor gentleman who was so barbarously murdered some years ago, near Ratcliff Highway—if he is, he is uncommon genteel. At 12 o'clock we got into a boat and rowed to the packet; it was a very fine and clear day for the season, and Mr. Fulmer said he should not dislike pulling Lavinia about all the morning—this, I believe, was a *naughty-call* phrase—which I did not rightly comprehend, because Mr. F. never offered to talk in that way on shore to either of us. The packet is not a *parcel,* as I imagined, in which we were to be made up for exportation, but a boat of very considerable size; it is called a cutter—why, I do not know, and did not like to ask. It was very curious to see how it rolled about—however, I

felt quite mal-á-propos—and instead of exciting any of the soft sensibility of the other sex, a great unruly man, who held the handle of the ship, bid me lay hold of a companion, and when I sought his arm for protection, he introduced me to a ladder, down which I *ascended* into the cabin, one of the most curious places I ever beheld—where ladies and gentlemen are put upon shelves like books in a library, and where tall men are doubled up like bootjacks, before they can be put away at all. A gentleman in a heavy cap, without his coat, laid me perpendicular on a mattrass, with a basin by my side, and said that was my birth. I thought it would have been my death, for I never was so ill-disposed in all my life. I behaved extremely ill to a very amiable middle-aged gentleman, who had the misfortune to be attending on his wife, in a little bed under me. There was no *symphony* to be found among the tars (so called from their smell), for just before we went off I heard them throw a painter overboard, and directly after they called out to one another to hoist up the ensign. I was too ill to inquire what the poor young gentleman had done; but after I came up stairs, I did not see his body hanging anywhere, so I concluded they cut him down—I hope it was not young Mr. Marr, a-venturing after my Lavy. I was quite shocked to find what democrats the sailors are—they seem to hate the nobility—especially the law lords. The way I discovered this *apathy* of theirs to the nobility, was this—the very moment we lost sight of England and were close to France, they began, one and all, to swear first at the Peer, and then at the Bar, in such gross terms as made my very blood run cold. I was quite pleased to see Lavinia sitting with Mr. Fulmer in the traveling carriage on the outside of the packet; but Lavinia afforded great proofs of her good bringing up, by commanding her feelings. It is curious what could have agitated the *billy ducks* of my stomach, because I took every precaution which is recommended in different books to prevent ill-disposition. I had some mutton chops at breakfast, some Scotch marmalade on bread and butter, two eggs, two cups of coffee, and three of tea, besides toast, a little fried whiting, some potted char, and a few shrimps, and after breakfast I took a glass of warm white wine negus and a few oysters, which lasted me till we got into the boat, where I began eating gingerbread nuts all the way to the packet, and there was persuaded to take a glass of bottled porter to keep everything snug and comfortable. Adieu,

Yours truly, DOROTHEA JULIA RAMSBOTTOM.

SANITARY SCIENCE.

A SYNOPSIS OF SANITARY SCIENCES AS REPRESENTED IN THE SANITARIAN, ALPHABETICALLY.*

By The Editor.

Grant, Sir James, Our Race and Consumption, xlv, 385.
Grant, J. A. S., Hygiene in Modern Egypt, xix, 197; Localizing Conditions of Cholera in Calcutta, xxi, 327; Sanitary Condition of India and Its Teachings, xxii, 396.
Grant, W. Buckner, xxxviii, 478.
Grapes, iv, 267; Wild, Poisonous, xlvii, 150.
Gratitude, Howells, xliv, 352.
Graveyard Pestilences, xxii, 151; Dangers, xxxvii, 323.
Graveyards in London, xxiii, 204.
Gray, E. W., Milk, iii, 64.
Gray, J. P., Defective Drainage, i, 565.
Gray, S. M., Water Supply, xliv, 23.
Grease, How to Remove from White Marble, xxvii, 477.
Great Britain, Department of Health, xl, 84.
Great Salt Lake, a Haven for Timid Bathers, Inman, xliv, 382.
Greatest Engineering Undertaking of To-day, xxxiv, 76.
Greeley, Lieutenant, The Story of His Rescue, Edward H. Green, xiii, 262, and The Last Scene in the Greeley Tent, Winfield Scott Schley, 519.
Greek Boys, G. T. Ferris, xxxvi, 475.
Greeley, T. D., Influence of Alcohol on Longevity, xxxv, 403.
Green, E. H., Story of Lieutenant Greeley's Recovery, xiii, 262.
Green, E. M., Medical Inspection of Schools, xlvii, 498.
Green, J., Hygiene, xxi, 133.
Greenly, T. B., Hygiene of Infancy and Childhood, xxi, 398.
Greenwood, Major, London Water Supply, xxxiv, 217.
Gregory House, Mahopac, E. L. Viele, ii, 370; iv, 334, 426.
Griffin, J., Work of the Health Department, Brooklyn, xxix, 289.
Griffin, W. T., Nuts as Food in Foreign Countries, xlii, 55.
Griffiths, W. C., Variola Vaccination, v, 407.
Grimshaw, R., Filters, xxi, 238; Cemeteries in Their Relation to the Potable Water Supply of New York, xxiv, 148.

*Continued from previous number.

Grindelia robusta in Disease of the Respiratory Tract, M. Jasiewitz, xxxii, 146.
Grinnell, W. F., Garbage and Sewage, Disposal of, Manchester, xxxv, 433.
Grippe, Documents Relating to, xxix, 70; Becomes Tuberculosis, xxxiv, 359; Ushers Rheumatism, 518; Treatment of, Bryce, xl, 43; a New Name for, xli, 43; To Investigate, xlvi, 254.
Grippal Neurosis, xliv, 51.
Griswold, C., Leprosy in the Sandwich Islands, xix, 120.
Gross, Prof. S. D., xi, 617; xiii, 176.
Gross, S. D., Sanitary Deficiencies, ii, 419.
Ground Water, The Influence of, on Health, B. Latham, xvii, 394.
Groove, A., In a Hole! xxxv, 350.
Grout, D. D., Relation of Animal Diseases to Public Health, xlvii, 310.
Growing Old? No.—O. W. Holmes, xlvii, 519.
Growing Pains, a Humbug, xxxv, 154.
Growth, Arrest of, Springer, xliv, 235.
Grunsky, C. E., Proper Disposal of Sewage, xl, 289.
Guaicol Bandages, xliii, 447.
Guenther, R., Woandsu, an Ideal Food, xlvii, 21.
Guernsey, R. S., Defective Drainage, i, 562.
Guernsey, R. S. Biographical Sketch, with Portrait, x, 615.
Guernsey, R. S., Medico-Legal Sciences, x, 305, Law Relating to Removal of Corpses, 519; Suburban Homes, xi, 563; Utilitarian Principles of Taxation and Their Relation to Altruism, xlvi: 225, 328, 419, 518; xlvii: 22, 134, 227—Water Taxation and What Municipal Ownership Has Done and What It Should Do, 289.
Guiteau, Reasoning Mania, with Special Reference to the case of, Wm. A. Hammond, x, 205.
Guiteau, What is the Duty of the President in the Case of? Clark Bell, x, 475.
Gun, R. A., The Truth about Vaccination, Discussion, xxvii, 324, 458, 548.
Gundrum, Frederick, Disposal of the Dead, xii, 532.
Gunnell, F. M., Health of the Navy, xvi, 10.
Guy, Dr., The Movements of Epidemics, x, 605.
"Gwine Back Home," xxviii, 347.
Gymnasia Class Rooms, Foul Air of, xiii, 42.
Gymnasia and Play Grounds, Mayor Quincy, xl, 303.
Gymnasia in Sweden, J. S. Clark, xxviii, 246.

Gymnasium, The Durant, xlii, 43.
Gymnasium, a Public, xxxvii, 561.
Gymnastics for Schools, S. S. Putnam, iii, 199.
Habit, The Alkaloidal, MM. Claisse and Bruardel, xliii, 448.
Hackett, W. A., Lupus—A Tubercular Affection of the Skin, xlvii, 225.
Hæmaturia Nervasa, Lancereaux, xlv, 333.
Hail! Holy Light, xliii, 34.
Hair, Loss of, Treatment of, Jackson, xlvi, 157.
Hale, E. E., High Houses, xli, 158.
Hamburg Board of Health, xxxii, 460.
Hamburg, Sanitary Condition of, xxxi, 83.
Hamburg Water and Cholera, J. B. Coppock, xxix, 519.
Hams, Westphalia, xxxviii, 53.
Ham Curing, v, 567.
Hamilton, F. H., Cholera Stamped Out, i, 199; iv: Inaugural Address, Medico-Legal Society, 37; Effects of the Loss of Conscientiousness Upon the Memory of Preceding Events, 49; Sewer-Gas Poisoning, 83; Résumé of the Proceedings of the Medico-Legal Society, 563; v, 117; Status, Purposes and Sanitary Aspects of the Medico-Legal Society, vi, 24.
Hamilton, J. B., International Comity in State Medicine, xxiii, 481; Work of Marine Hospital Bureau, xxiv, 501; On the Chandeleur Island Quarantine Station, xxxi, 560; Resignation of, from the Marine Hospital Service, xxxvii, 558; The Preventing of Tuberculosis, xxxix, 193.
Hæmokonia, Dr. Muller, xxxviii, 542.
Hæmoptysis, Treatment of, M. W. Morain, xxxv, 142; Salicylate Treatment of, T. J. Mays, xxxix, 32.
Haffkine's Cholera Inoculation, Report, W. J. Simpson, of Calcutta, xxxiii, 122.
Haffkine's Serum, The Plague in Bombay, W. T. Fee, xliv, 227.
Hahnemannian Doctrine of Increasing Potency, xxiv, 90.
Haines, Reuben, The Ammonia Process of Water Analyses, xxvi, 311.
Hair, Loss of, xliv, 50.
Hair, The Therapeutic Treatment of, L. Hoffman, xxiii, 84.
"Hale's, Dr.," Celebrity, xl, 493.
Hall, L. M., Tenement-Houses and Their Population, xiv, 209; Our Clothes, xxiii, 487.
Halley, W., The Plumber as a Sanitarian, xvi, 518; The Plumber's Plea for Representation on Boards of Health, xviii, 241.

Hallucinations, Census of, xxv, 95.
Hamilton, J. Kent, Sanitary Condition of Toledo, O., xx, 193.
Hamlin, C. W., Sanitary Condition of the Public Institutions of Herkimer Co., N. Y., xviii, 138.
Hammond, Wm. A., Sanitary Influence of Light, i, 58; Railway Injuries in Their Medico-Legal Relations, iv, 289; Reasoning Mania,—Case of Guiteau, x, 205; Proper Method of Hanging, 664.
Hanan, A., Theory of Recovery and Immunity from Infectious Diseases, xxii, 120.
Hance, I., Hydrotherapy in the Treatment of Insomnia, xliii, 25.
Hance, L. H., Clinical Study of Tuberculosis and Modification of the Lymph, xxxi, 45.
Hancock, C., Sewage Disposal in London, xxi, 35.
Hand-feeding of Infants, Eustace Smith, ii, 444, 505.
Hands, Care of the, xlii, 190.
Handwriting Expert, The Art of the, xlvi, 95.
Hanson, D. S., Milk Contamination, xlvi, 401.
Hankin, F. H., Bhowani, the Cholera Goddess, xxxvii, 410.
Happiness, The Pursuit of, xlvi, 91.
Hat-Headache a New Disease, Chancellor, xxxvi, 387.
Hatcher, R. A., Atmospheric Ozone, xlvi, 42.
Hanging Baskets and Window Boxes, v, 474.
Haughton, S., Reflections on the Death-rate, xx, 22.
Hard *vs.* Soft Water, R. S. Nailor, vii, 498.
Hard Times, viii, 91.
Hardee, T. S., Topography and Drainage of New Orleans, iii, 297.
Hargis, R. B. S., Nautical Origin of Yellow Fever, viii, 175; Yellow Fever Recognition and Isolation, ix, 357; Yellow Fever Prevention, xi, 97.
Harmful Effects of Foods, Vaughan, xliii, 560.
Harmonizing Quarantine Efforts, vii, 525.
Harold Frederick, The Killing of, xli, 555.
Harris, A. C., Address, xlv, 499.
Harris, Elisha, Diphtheria, ii, 511; The Sanitarian, iii, 87; Homes for the Laboring Classes, 145; Sanitary Appreciation, 283; Conservative Medicine and the Mission of the Sanitarian, v, 126; Diphtheria in Northern Vermont, vii, 353; Drainage for Health, ix, 510.
Harris, Elisha, Obituary of, xii, 281.
Harrington, C., Food Poisoning and Metallic Irritants, xliv, 193; Lowell's Poisonous Water, xlv, 56, 228.

Harrington, M. W., Sensible Temperatures, xxxiii, 303; Sanitary Climatology, xxxiv, 181; Sunshine Statistics, xxxv, 256.
Harris, Senator Isham, Epidemic Diseases Before Congress, xi, 643.
Harris, W. J., Chemical Disposal of Sewage, xiii, 544.
Harrison, F., Examining and Cramming, xxii, 327.
Hart, H. M., Increase of Crime and Moral Education, xxix, 229.
Hartzell, Josiah, Canton's Water Supply, xxii, 48; The Mississippi River as a Sewer, xxxv, 411.
Harrison, Ex-President, Address on Sanitation, xlv, 498.
Hartford City Water, x, 564.
Hartshorn, Henry, Prediction with Regard to Cholera, i, 283; Watering Places, iv, 256.
Has New York a Board of Health? iv, 145.
Hats, Sweat-bands of, xxiv, 265.
Hatting, as Affecting the Health of the Operatives, L. Dennis, vii, 362.
Havana Commission, The, National Board of Health, viii, 274.
Havana, Engineering Work in, General Ludlow, xlvi, 210.
Havana, Home Life in, C. E. Fisher, xliv, 411.
Havana, New Orleans and, xlii, 356.
Havana, Prevalence of Yellow Fever in, S. E. Chaillé, xi, 194; Unsanitary Condition of, Erastus Wilson, xxix, 452; xliii, 471.
Havana's Good Health, xlii, 519; xliii, 66.
Havana, Sanitation in, Colonel Black, xlii, 399; xlvi, 353; Vital Statistics, 278.
Havard, V., Sanitation and Yellow Fever in Havana, xlvii, 13, 121.
Haven, E. O., Moral Culture, vi, 455.
Hawaii, The Varied Climate of, C. F. Nichols, xxxix, 282; A. B. Lyon, xl, 333; Health of, xli, 542; J. C. Wise, xliv, 223.
Hawaiian Islands, The, Walter Maxwell, xliii, 403.
Hawaiian Races—Demographic Effect of Introduced Diseases, G. W. Woods, xix, 234.
Hawkens, J. P., Canned Foods, xiii, 255.
Hawley, J. S., Infant Diet, iv, 63.
Hay Fever, F. H. Bosworth, xv, 52; Not Incurable, D. F. Wright, xxv, 319; New Cure for, xxxiv, 362; M. Joal, xxxvi, 249; Rixa, xliv, 238.
Haywood, Julia, Hygiene of the Schools, xlviii, 502.
Hazard, Hazard & Co., xxv, 248.

Hazen, A., Sand Filtration, xxxvii, 427.
He Got a Receipt, xxxi, 422.
Headache, Chronic, Treatment of, with Calomel, xxxvi, 342.
"Headache Powders," xli, 546; Death from, xliii, 58.
Head-Lice, Treatment of, xxv, 277.
Health, i, 227; xlii, 44; a Fragment, 204.
Health Administration, General, H. B. Baker, xliv, 33.
Health Administration, Local, H. R. Mills, xliv, 31.
Health Alphabet, xi, 182.
Health of the Army, xviii, 13, 145; xxxiv, 249; xxxvi, 258.
Health Authorities, Medical Support of, xxviii, 172.
Health, Better than Wealth, v, 213.
Health, Chief Requirements of, W. M. P. Noble, xxiii, 193.
Health Bill, and Resolution by American Public Health Association, for the Establishment of a National Bureau of Health, i, 11, 133; xxxii, 172; xxxvi, 77; xl, 123.
Health Board Organizations, Report on, xx, 144.
Health Board, Our Bashful, xlvii, 346.
Health Boards and Health Laws, Relations of Physicians to, Lewis Balch, xx, 303; Selection of Members, xlv, 459.
Health, National Board of, Proposed Revision of the, A. N. Bell, xxxii, 230.
Health, Supreme Board of Mexico, Orvananos, xxvi, 508.
Health Board Appointments in New York, i, 236.
Health Boards, The Plumbers' Plea for Representation on, Halley, xviii, 241; Duties of, as Popular Instructors, xxxvii, 66; School Directors as, xliii, 153.
Health Boards, Unpaid, x, 176.
Health, The, of Children, J. G. Richardson, xi, 121; xvii, 66.
Health of Boys in School and College, xlii, 116.
Health and Comfort, xxxviii, 154.
Health, Comfort and Dress, x, 563.
Health, Conditions of, John Simpson, xx, 390.
Health Congress at Hastings, England, xxiii, 150.
Health, Conventional Mourning or, xxiii, 350.
Health and Culture, Rev. Dr. Osgood, ii, 400.
Health Commissioner, A Woman for, xxxv, 267.
Health Department, Limitations of, in Brooklyn, xxv, 249.
Health Department of New York, xi, 330; xxii, 546; Pension Fund for the Employés of, xxx, 563; of the Greater New York, Stephen Smith, xxxviii, 293; New York County Medical Society's Opposition to, xl, 250.

Health, "Department" of Public, Prosed, xxxix, 509.
Health and Economics, F. J. Van Voorhis, xxxix, 133.
Health, Education in Relation to, D. Clark, xxi, 193.
Health, Effects of Literature on, viii, 90.
Health and Employment, C. Stephenson, xxx, 426.
Health Exhibition, The Brooklyn, xxiv, 193.
Health Exhibition, Scientific Aspects of, xiii, 439; xxiii, 361.
Health Experiments in the French Army, xxxvi, 91.

HEALTH-FOODS, INVALID-FOODS, INFANT-FOODS AND MILK SUGAR.—Prof. Albert R. Leeds, of Stevens Institute of Technology, Hoboken, N. J.:

"If a food is all that it should be, it ought to supply all the wants of the body, and no part except the non-nutritious portions be rejected. But there is practically no substance known that will entirely fill that rôle. . . . It is very important to recognize the general division of food substances into two great classes—the albuminoids and carbohydrates. Now, if you look over this table of the composition of different foods it might seem that if we knew the percentage of albuminoids and carbohydrates in the composition of each, we could easily determine the relative values of the different foods, simply by observing the ratio of these two great classes to each other. But it will not do to simply add together the numbers representing the percentage of albuminoids in the composition of food and compare it with the number representing the percentage of fats and carbohydrates in order to determine its value for this reason. Dr. Frankland found by his experiments that one pound of beef fat would give off in combustion an amount of mechanical energy represented by 5,600 foot-tons, while arrow-root starch gave off but little more than 2,000 foot-tons of energy; and therefore, in a pound of beef fat there is nearly three times as much power, or heat, as in an equal weight of arrow-root starch. To multiply the power of the carbohydrates by three to determine the relative power of fats is, however, considerably too high an estimate practically. For, in those well-known physiological experiments made at Munich by Pettenkofer, he showed that the true ratio between the amount of mechanical energy set free by the burning up of the fat in the body to that of other foods made up of carbohydrates was 1.75 to 1. Now when we remember this fact and turn to our table and begin by observing the composition of our theoretical food, we find that the ratio of the albuminoids to the carbohydrates is here as 1 to 4, and that ratio is higher than in any one of the other foods in the table, ex-

cept that of the beef, where the proportion of albuminoids is twice as great as the carbohydrates. This ratio of the albuminoids to the carbohydrates in any food I speak of as the 'ratio of nutrition.' In the theoretical food it is as 1 to 4; in woman's milk it is 1 to 7; and in cow's milk, 1 to 3.2." . . . xi, 321.
Health of Hawaii, xli, 542.
Health, The Indian School in Relation to, M. M. Waldron, xxxvii, 303.
Health, Inequality in the Inheritance of, xlii, 473.
Health, Influence of Ground Water on, B. Latham, xvii, 394.
Health, Influence of Inundations of Louisiana on, Chaillé, xi, 357.
Health Insurance, or the Financial Relation of the Medical Profession to the Public, Woods Hutchinson, xviii, 3.
Health Item—An Infected Blanket, xi, 56.
Health Laws, Inequality of, xi, 30.
Health Legislation for New York, i, 570.
Health Legislation and Quarântine, National, H. P. Walcott, xxix, 385.
Health Legislation, Needful, Example for, in America, xxiv, 353.
Health Lift, iv, 47.
Health, Local Boards of, Their Duties and Powers, McAlvay, xliv, 30.
Health of the Mind, Benjamin Ward Richardson, xxiii, 17.
Health of the Navy, xx, 261; xxiv, 67; xxvi, 121; xxx, 228; xxxi, 251; xxxiv, 254; xxxvi, 56; xxxviii, 67; xl, 55.
Health the New Fashion, iv, 164.
Health Officer of the Port of New York, New, xxxiv, 178.
Health Officers, School of, xliii, 253.
Health Officials, Verdict Against, xliv, 254.
Health, Our Pine Forests, as Factors of, S. S. Satchwell, xxxix, 390.
Health, Public, The Relation of Agriculture to, S. W. Abbott, xlv, 435.
Health of the People, J. R. Black, ii, 408; O. C. McCullock, xi, 65; Erastus Brooks *et al.* (The Pennsylvania Sanitary Convention), xvii, 111.
Health and Pleasure, Jamaica for, Wilfred Nelson, xxxii, 117.
Health Protection, Sociology and, in New Zealand, xxxvii, 471.
Health, Public, Necessity for More Stringent Laws, and Stricter Enforcement of Existing Ones, G. H. Rowe, xxv, 215; Protection of the, xxxii, 140; Relation of Animal Diseases to, D. D. Grout, xlvii, 310; Department of, xxxviii, 442; Clean

Streets and, xxxix, 473; School of, xlii, 537; State School of Public Health Officers, xliii, 366.
Health Protective Guild, xlv, 320.
Health Report, A Model, xliv, 169.
Health of Rome, xxxvi, 557.
Health Service, National, xxx, 216; The Need of, xxxii, 372, 423; Walter Wyman on, xxxiii, 81; Evolution of, xxxv, 532; Awaiting Congressional Action, xlii, 79; National Board of, George M. Kober, 103.
Health Rules, Prize for, xlii, 534.
Health Studies, Cosmopolitan, F. L. Oswald, xlvii, 29, 231.
Health, Smoking for, xi, 248.
Health of Rowing Men, E. H. Bradford, v, 529.
Health Undervalued, i, 312.
Health of School Teachers, vi, 353.
Health and Talent, vi, 171.
Health of New York, Prof. Chandler, iv, 60.
Health, Preservation of, Richard McSherry, xi, 657, 673, 684.
Health, Public, and Legislation, W. C. Cook, xiv, 316.
Health, the Public, The Influence of Habits and Usages on, J. W. Hervey, xiv, 144.
Health, The Relations of Temperature to, in Dwellings, D. Benjamin, xviii, 124.
Health Resorts, The Atlantic Coast, E. W. Bowditch, xi, 177, 202, 213; Selection of, W. T. Parker, 273, 309; Western North Carolina, O. W. Marcey, xvi, 193; Midland as, C. A. L. Reed, 438; Various, xvii, 132; Ocean and Hight Altitudes, xl, 24; of Pennsylvania, xlii, 239; Oceanic, Bell, xliii, 385.
Health Resort, Pathology of, C. E. Ide, xl, 231.
Health School, The Vermont State, xlv, 230.
Health, Sewers and—The Memphis Example, xliii, 227.
Health, State Boards of, xvii, 350; xxiv, 77.
Health, Village Boards of, A. Hutt, xx, 419.
Healthful Buildings, Suggestions Concerning, W. C. Van Bibber, xi, 84.
Healthful Country Homes and Cheap Farm Lands, vii, 181.
Healthful Homes, V. C. Vaughan, xvii, 140.
Healthful Influence of New Jersey Forests, John Gifford, xxxiv, 178.
Healthfulness, Remarkable, xi, 39.
Hearing with One Ear—School Hygiene, x, 511.
Heart, Effect of Violent Exercise Upon the, Williams, xliii, 32.

Heart Disease, Effects of High Altitude on, A. L. Loomis, xvii, 124; Contra-indication for the Use of Blisters in, xxi, 381; Chloride of Barium in the Treatment of, xxiii, 277; The Toxic Nature of Dyspnœa in and Treatment of, M. Huchard, xxviii, 466; Treatment of by Baths and Gymnastics, R. H. Babcock, xxxiii, 195; Prognosis in Valvular Affections of the, N. S. Davis, xliii, 29; Traumatic Rupture of, R. C. Newton, xliii, 31.
Heart Failure, Signs of, in Fevers, M. Huchard, xxxiii, 263; Kelch, xlvii, 238.
Heart, The First Sound of, xxxviii, 541; Pathology of, Bouchard, xlii, 71.
Heat, Diffusion of, B. Stewart, vii, 204.
Heat, Summer, The Effect of, Upon the Public Health, Chapin, xlv, 100.
Heating, Artificial, Atmospheric Moisture and, W. M. Wilson, xliii, 399.
Heating and Cooking by Gas, J. R. Thomas, xxiii, 41.
Heating and Ventilation of Dwellings—Hot Air *versus* Steam, for, Dr. Slusser, xxii, 49.
Heating and Ventilation of Public Buildings, Thomas Elkinton, xxiii, 306; The Smead System, xxxiii, 156.
Heating, Factory, xliv, 115.
Heating-Pad, An Electric, Chancellor, xxxvi, 291.
Hecker & Co.'s Mills, xi, 16.
Heights and Weights of School Children, H. I. Bowditch, iii, 201.
Helen Keller a Second Laura Bridgman, xxxiii, 224.
Help, The, that Harms, xliii, 477.
Helplessness, Total, Legal Definition of, xxv, 295.
Helping-Hand, The, in London, xlvi, 285.
Helthin—A New Method of Testing Drinking Water, Herdmann, xlvi, 120.
Hematemesis and Ulceration of the Stomach, F. Ferrand, xxxiv, 517.
Hemiatrophy, Facial, Rousseau, xl, 44.
Hemlock Poisoning, Case of, A. N. Bell, iii, 117.
Hemorrhage, Intra-Uterine, xxix, 250; Neuropathic, xlvi, 156.
Hemostatic, A, Hot Air as, Schneider, xlii, 70.
Henry, Prof., What Is Heat Lightning, vi, 306.
Henry, Prof. Joseph, Obituary, vi, 331.
Hepatic Disease, xxix, 537.
Hepatism and Biliary Diathesis, Glenard, xlvi, 58.

Herbert, T., Development of Malarial Fever, xix, 219.
Hereditary Diseases, Society for the Prevention of, xxxvii, 337.
Heredity, Degenerative, Ch. Denison, xxxv, 510; and Individual Responsibility, Grace Peckham Murray, xl, 567.
Heredity, iii, 177; in Disease, J. Schilling, xxiv, 49; Run Mad, xxxix, 345; The New Theory of, The Method of Evolution and Heredity, H. W. Conn, xlvii, 39.
Hermite, E., Electrolytic Methods of Disinfection, xxx, 506.
Hernia, Inguinal, The Radical Cure of, xxvi, 358; xxxii, 368; xxxix, 354; Strangulated, Reduction of, xlvi, 57.
Hernia, Umbilical, Perak, xliv, 157.
Hernial Tuberculosis, M. Fagnet, xliii, 534.
Herold, H. C. H., Diphtheria Antitoxin Plant, xlv, 497.
Heroes, Life-Saving, Cobbe, xliii, 90.
Heroes of the Railway, xlii, 381.
Heroic Treatment, Mr. Shivvers Tries, xliii, 450.
Herpes, an Infectious Disease, Vidal, xlv, 450.
Herpes Zoster, a Cause of Pleurisy and Peritonitis, R. G. Curtin, xxv, 548.
Herrero, M., Typhoid Fever, xxxiii, 62.
Herrick, D. S., Yellow Fever in New Orleans, 1879, viii, 80.
Herrick, H. J., Food and Its Relations to Disease, xvi, 428; The Real and the Ideal in Hygiene, xviii, 193.
Herrick, S. S., Railroad Sanitation, x, 102; Relation Between Underground Sewerage and Filth Diseases, xiii, 422.
Herring, Rudolph, Disposal of Garbage, xxxiv, 137; xxxix, 485; Pollution of Water Supplies, xlv, 502.
Herring, W. H., How to Burn and How to Save Gas, xxxiv, 316.
Hessler, R., Norway Itch, xxx, 507.
Hewett, C. N., The Prevention of Disease, xi, 52; State Medicine in Minnesota, xv, 130; Interstate Notification of Infectious Diseases, xvii, 343, 438.
Hides, Human, No Property in, xi, 410; Existing Methods of Dealing with Emigrants, xxvi, 512.
Hibberd, J. F., Clothing in Its Relation to Hygiene, xxiv, 139; Progress of Preventive Medicine, xxxii, 3; Preventive Medicine, A Quarter Century of, xli, 353.
Hidebound, The—Which? xxxviii, 65.
High Houses, E. E. Hale, xli, 158.
Higgins, German Laundry Soap, viii, 276; ix, 236.
High Buildings, New York's, xxxvi, 245.

Hildebrand, F., Relation of Plant Longevity to Geographical Distribution, x, 472.
Hill, Alfred, Existing Methods of Sewage and House Refuse Disposal, xviii, 21.
Hill, A. B., Construction and Ventilation of House Drains, xlii, 28.
Hill, H. W., The Official Definition of Diphtheria, xliii, 527.
Hill, J. W., The Water Supplies of Eight Cities in Relation to Typhoid Fever Rates, xxxviii, 501; The Benefit of Water Filtration, xl, 495.
Hill, W. R., Early Methods of Collecting, Storing and Distributing Water, xli, 424.
Hills, W. B., Sanitary Protection at Newport, R. I., x, 286; The Value of Corrosive Sublimate as a Practical Disinfectant, xxi, 331.
Hindrances to Vaccination, J. M. Toner, ii, 443.
Hingston, W. H., Influence of the Climate of Canada on Health, xxxiv, 138.
Hindsdale, Guy, Comparative Rarity of Phthisis in the Highlands of Pennsylvania, xxxiii, 300; Infected Atmosphere, xxxvii, 48; Treatment of Tuberculosis by Antituberculosis Serum, xxxix, 25; The Cold Wave of February, 1899, xliii, 32.
Hints to Nurses, iv, 255.
"Hips" in St. Petersburg, xxiii, 564.
Hirtz, M., Early Phlebitis in Tuberculous Subjects, xxxiii, 165.
His First Case, xxxiii, 288.
Hiscock, C. O., National Board of Health, xxxiv, 289.
Histero-Traumatism, xxvi, 163.
Hitchcock, Prof. E., Hygiene at Amherst College, v, 547; vii, 218; A Perverted Will as a Factor in Insanity, xii, 381.
Hoagland Laboratory, The, xxi, 362.
Hoarseness, Immediate Relief of, xxiii, 281.
Hochheimer, L., What Are Cruel Punishments? xvii. 214.
Hoffman, F. L., Life Insurance and Public Health Problems, xxxix, 38; Mortality from Sunstroke and Heat Exhaustion, 328; Cremation as a Life Insurance Problem, xlvi, 51.
Hog Cholera, The Virus of, D. E. Salmon, xvi, 390.
Hog Inspection in Germany, xliv, 58.
Hog Disease, A Fatal, in New Jersey, xxxv, 277.
Hog, The Scandal on the, xxiv, 172.
Hogan, Mrs. J. L., Household Economics, xxxix, 481.
Holden, E., Furnace-Air Boxes as Vehicles of Disease, xi, 179; House Heating and Its Dangers, xiv, 38.

THE SANITARIAN.

OCTOBER, 1902.

NUMBER 395.

THE FACTORS OF HEALTH.*

By MR. E. G. MAWBEY,
Borough Engineer of Leicester, President of the Section on Engineering and Architecture.

Referring to this section, it may be said that engineers, architects, sanitary officials, and the various allied trade branches, form in their investigations practical works of defense, and, waging constant war against the ravages of pathogenic and other harmful bacteria and various causes of ill-health, are as indispensable to the sciences of medicine, bacteriology and chemistry as are the army and navy for the protection of our empire. This is, doubtless, the reason for our position in the various great health congresses which are held from time to time in different parts of our own and other great countries, and in which Englishmen rarely fail to take a prominent part. It is to be hoped that you will by your deliberations and discussions on the various papers at this congress be able to make some valuable contributions to the advancement in your sphere of whatever tends to diminish the causes of low vitality and disease, and to energize, brighten and prosper our nation. Now, what are the chief factors of health laid down by the great medical authorities throughout the world which come within the province of our section? I venture to say that they are pure air, pure water, a dry and clean subsoil, diminution of noise from the traffic in our streets, exercise and personal cleanliness, with healthful and cheerful homes and surroundings, and plenty of honest and well-directed work. What are the works in connection with these natural laws for health that come within our sphere, acting in our respective capacities in advising

*Address ("The Surveyor," Aug. 29, 1902) at the meeting of the Royal Institute of Public Health, at Exeter, Aug. 20, 1902.

and serving the different municipalities and local authorities throughout the country?

It may be stated that the requirements are briefly: For pure air —Efficient public and private scavenging and cremation of the refuse; efficient ventilation; wide thoroughfares, with ample intercepting streets; proper construction, cleansing and ventilation of sewers and drains, and other sanitary arrangements; open spaces in centres of population; ample air spaces to dwellings and around our factories and workshops, to insure light and air; the prevention or abatement of smoke; due restrictions upon noxious trades; electrification of our poisonous underground railways; the drainage and prevention of pollution of our subsoil, and the diminution of malarial and other troubles by the reclamation of swamps, improved drainage and the carrying out of floods-prevention schemes. The legislation for the last-mentioned is far from what it should be in giving facilities to small local authorities to rid their districts and inhabited areas from disastrous floods.

The supplies of pure water are to be insured by the satisfactory disposal and efficient purification of the sewage of every town, village and habitation; the prevention of fouling of our rivers, water courses and springs; the compulsory provision of a practically pure public water supply, not only to our large towns, but also throughout all rural districts, where large populations are now depending for their supply upon shallow and frequently highly polluted wells in close proximity to their dwellings. There is great need for a national movement in conjunction with the Local Government Board for the better control and utilization of our catchment and drainage areas, so as to facilitate, and even enforce, the joint schemes by groups of municipalities and local authorities for the supply of wholesome water within the various watersheds of the country. Good work has been of late done by the county councils and rivers conservancy boards in the protection of the sources of water supply, especially in bringing pressure upon local authorities to deal with their sewage.

The noise in our streets can be much reduced and the sanitary conditions improved by the extended use of asphalt and hardwood pavements, which should be regularly washed as well as swept, and also by the introduction of electric traction and the perfection and development of self-propelled vehicles, with a corresponding diminution of horse traffic, with all its attendant fouling of thoroughfares. In order to encourage exercise and personal cleanliness, ample provision of recreation grounds, gymna-

sia, baths and open-air bathing stations, etc., are indispensable in all thickly populated districts. It is notable that the architects of the present day are making an earnest study of hygiene, and are taking great pains to adopt up-to-date sanitary arrangements in the designing of dwellings and of the various buildings in which a great portion of time is occupied by people in earning their livelihood, and also of the schools for the young. The duties of our sanitary and building inspectors are of vital importance in the carrying out, with the utmost vigilance and intelligence, of their work, not only in discovering insanitary conditions and defects in construction, but in reporting and dealing with the neglect, misuse and mismanagement of even the best sanitary works which can be provided. In a presidential address I cannot, obviously, undertake to deal exhaustively with these various subjects, but I will touch briefly upon two or three of them which are just now within my personal experience.

It is on such occasions as this congress, largely attended by delegates from public bodies, that among other questions the great need should be emphasized for rigorously enforcing the provisions of the Public Health Act, 1875, for the prevention or abatement of smoke nuisance. This is highly necessary in the interests of health alone, but is hardly less so from the aspect of injury to, and disfigurement or defacement of, the beauty of our towns, the destruction of vegetable life or the gloominess of the atmosphere. The reduction of smoke from fireplaces is a very difficult problem for the future, although much has already been effected by the extended use of gas stoves and smoke-consuming grates; but it is the trade chimney stacks that do the mischief, and I venture, from practical experience, to say that it is readily preventable to a sufficient extent without retarding and injuring trade interests, and, further, that it pays well to adopt the remedies in the saving effected by the more complete combustion of coal instead of charging the atmosphere with hundreds of tons of imperfectly consumed fuel in suspension. The chief remedies are: Sufficient boiler capacity to avoid being compelled to be almost continuously stoking boilers for all they are worth, resulting in the unavoidable issue of black smoke; the provision of automatic stokers for the auxiliary supply of oxygen to the furnaces; chimney stacks of sufficient capacity and height for the horse-power required; and the employment of duly-qualified and careful men, together with proper supervision. To prevent smoke it is necessary to maintain regularly a high temperature in the boiler fur-

naces by careful and economical stoking, combined with a uniform and ample supply of air partly heated by the furnace in its passage thereto, and so admitted as to combine with the hydro-carbons given off. I have frequently seen these desired results brought about in Leicester and other towns, and there is now no lack of knowledge for guidance or of well-tried apparatus available.

At the congress last year I had the honor of dealing with the exhaustive tests in sewer ventilation which I had carried out at Leicester, and of the system there adopted—*viz.*, the abolition of surface-ventilating grids and the substitution of pipe shafts. This system is being extended in Leicester. No open grids are put on any newly constructed public or private sewers, but they are ventilated by shafts alone; and as each well-grounded complaint arises the open grid is, after due investigation, abolished and a shaft provided. We have good reason to believe that this system, with a most thorough, frequent and regular system of flushing of the sewers, is successful, and where adopted it has put an end to the numerous complaints of nuisance. The system now obtains to a more or less extent in many towns and districts throughout the country. It will also be remembered that this subject was considered of so much importance at the last congress that a joint meeting of sections, at which I had the honor of presiding, was held, and the great consensus of opinion, largely voiced by eminent medical officers of health, as well as engineers and others, was that these grids were a source of nuisance, contributed to ill-health and should be abolished.

This brings me to the very able paper which was then read by Mr. I. Shone, C. E., on "House and Town Drainage Systems of the Twentieth Century," in which he dealt with a new system of mechanical sewer ventilation which he had invented. I introduce this partly for the purpose of saying that arrangements are made for a practical test of this on a comparatively small section of sewers at Leicester. It is claimed for the system that it removes, dilutes and diffuses gases from sewage continuously, without detriment to the health or offense to the sense of the community, and that it is entirely independent of and superior in force to the variations of the outside air and the air inside the drains and sewers. In the experiments which it is proposed to carry out at Leicester the inventor estimates that a volume of two cubic feet of air per minute will be drawn through the drains and sewers for every house included in the area affected. An electric fan situated in a chamber under the footway will extract the air from the

sewers and discharge it through a standard ventilating shaft sufficiently high to expel the air above the level of the houses adjoining, inlets for fresh air being provided on the top of all the private ventilating pipes in place of the ordinary cowls or terminals, giving a constant current of air through the house drains in the direction of the flow of the sewage. This arrangement applies to the system of house drainage adopted at Leicester—*viz.*, that in all cases where drains do not pass under the houses the intercepting trap is allowed to be dispensed with; but wherever drains do pass under houses, or in any case where the owner prefers it, the intercepting trap is used. In Mr. Shone's system the intercepting trap arrangement is specially provided for, so as to admit the fresh air to the sewer at the end of the drain on the sewer side of the trap. It is proposed that very exhaustive and complete tests shall be made of this system, the results of which will, I hope, be made known in due course.

SEWERAGE AND SEWAGE DISPOSAL.

One of the most necessary, but too often neglected, sanitary works, in addition to providing new main intercepting sewers of towns, is to clear out all the defective old branch sewers, which, although they may appear to be serving their purpose of carrying the sewage to the main sewers, are, nevertheless, through leakage and defective construction, great sources of danger by constantly polluting with sewage and foul air the subsoil around the habitations of the people. This, having regard to the well-established fact of extensive circulation of ground air, and the induced inward currents caused by the warmer and lighter air within houses, is an important matter. This pollution has been vividly exemplified in Leicester, where, our system of new main intercepting sewers being completed at a great cost, we are undertaking the abolition of nearly thirty miles of old, defective, tributary brick sewers of small diameter, laid about the middle of the last century, substituting for them new sewers constructed of glazed stoneware pipes with patent water-tight joints. We have already completed about nine miles of this work, and in nearly every case have found, not only large deposits of sewage sludge in the old sewers, but also that the ground around and underneath was saturated and highly polluted with sewage matter, which in some cases percolated into the ground for a considerable depth below the old sewer. In all such cases this polluted soil has been removed, in addition to the old sewer itself. Such a condition of subsoil must obviously be

prejudicial to health, and it is most desirable that local authorities should not rest satisfied with providing new intercepting main sewers only, but should also abolish their old and defective branch sewers, to which the house drains are connected and which are in such close proximity to the houses and properties they serve.

There is, perhaps, no more difficult problem to be solved than the successful purification of sewage, and certainly nothing has given so much hope of a satisfactory solution of the difficulty as the recent experiments which have been conducted on bacteriological lines. In the past many methods have been tried with more or less success, but none have been supported by scientific investigation to the extent accorded to this system. Exhaustive experiments have been carried out on bacteriological lines in many towns in this country, especially in Exeter, Manchester, Leeds and under my own direction at Leicester. The particulars and results of the Leicester experiments were fully set forth in the report I prepared thereon, and largely embodied also in the evidence I had the honor of giving before Lord Iddesleigh's Royal Commission on Sewage Disposal. The workers in the bacterial purification of sewage have become very numerous, but one may fairly mention broadly such distinguished men as Klein, Houston, Frankland, Roscoe, Woodhead, Parry Laws and Andrews, Dibdin and Thudichum, Clowes, Dupré, Adney, Rideal, Scott-Moncrieff, Waring and Ducat, and the well-known eminent officers of Lord Iddesleigh's commission.

Much credit is also due to Mr. Cameron, the late city surveyor of Exeter, for the untiring energy and ability with which he has devoted himself to his now famous idea of adapting to modern bacteriological practice the septic action which has for ages past prevailed in the old and familiar cesspool, but with this difference —that, although some advantage was derived from partial liquefaction of solid matter in those cesspools, they were a source of great danger to health, from defective design and construction, from their close proximity to dwellings and sources of drinking water, and from the offensive overflowing liquid therefrom dangerously polluting the neighboring ditches and brooks, while Cameron's septic tanks, with his excellent automatic appliances, are so designed, arranged and located as to effect a large amount of liquefaction of suspended matters without the drawbacks and dangers peculiar to the old cesspool. The effluent from the septic tanks, which is usually then treated on bacteria beds on the intermittent-contact system as introduced and developed by Dibdin, is

passed through one, two or three beds successively, according to the strength of the sewage, in order to reach the necessary standard of purity. The continuous process of slow filtration through bacteria beds is now also much advocated by some, which is really the old system of filtration, but adapted to modern practice. It has not yet, however, made such successful headway as the contact or intermittent system.

Broadly speaking, the respective artificial bacterial systems, apart from land treatment, which are now practiced, may be grouped as follows: Ordinary subsidence tanks of comparatively small capacity, followed either by contact beds or continuous filtration in beds; open or closed septic tanks, followed by contact beds or continuous filtration in beds; and contact beds or continuous filtration alone. In some towns, where the trade liquids render the sewage very stubborn to treatment, some preliminary chemical precipitation, in conjunction with subsidence tanks and contact beds or continuous filtration in beds, has been resorted to. These artificial processes are defined and dealt with in detail by the present Royal Commission. There are several combinations of these systems, which cannot be done justice to in the scope of this address; but from my own experiments, extending over a period of thirteen and a half months, treating volumes of 60,000 to 467,000 gallons per day by seventeen different processes, I have been led to certain conclusions, which I will briefly refer to. Neither contact beds nor continuous filtration beds, without previous treatment of the sewage, will be permanently successful unless the sewage is extremely weak and largely free from matters in suspension. Open or closed detritus or subsidence tanks, with a capacity of about one-sixth of the dry weather flow per day, in conjunction with first and second, and, where necessary, third contact beds, effect a thoroughly efficient purification, and in these experiments gave, with two contact beds, an average purification of 83.12 per cent. in albuminoid ammonia and of 90.15 per cent. in oxygen absorbed at 80 degrees Fahrenheit in four hours, the average strength of the crude sewage being 1.2481 grains per gallon of albuminoid ammonia and 7.5929 grains per gallon of oxygen absorbed. The same process, but with the addition of a third contact bed, gave an average purification of 86.74 per cent. in albuminoid ammonia and of 91.32 per cent. in oxygen absorbed, the average strength of the crude sewage being 1.3641 grains per gallon of albuminoid ammonia and 7.8160 grains per gallon of oxygen absorbed.

The experiments, with the use of a closed detritus tank, followed by a closed septic tank, and then double-contact beds, gave an average purification of 79.91 per cent. in albuminoid ammonia and of 89.72 per cent. in oxygen absorbed, the average strength of the crude sewage being 1.0094 grains per gallon of albuminoid ammonia and 7.2152 grains per gallon of oxygen absorbed; and this same process, but with the addition of a third contact bed, gave an average purification of 83.68 per cent. in albuminoid ammonia and of 89.64 per cent. in oxygen absorbed, the average strength of the crude sewage being .8837 grains per gallon of albuminoid ammonia and 7.2019 grains per gallon of oxygen absorbed. In these two last experiments the volume treated in the septic tank for each twenty-four hours was equal to one and a quarter times its capacity in addition to the detritus tank.

Other important experiments which were carried out throughout the whole thirteen and a half months included the preliminary bacterial treatment of the sewage, with final purification on old pasture land with a heavy clay subsoil. The most successful of these was an eight months' continuous test of treatment with a closed detritus tank worked at the rate per day of six and three-quarters times its capacity, then through first contact bacteria beds (three fillings a day), with final purification by broad irrigation on the old pasture. An average of numerous analyses gave a purification effected of 86.76 per cent. in albuminoid ammonia and 91.08 per cent. in oxygen absorbed, the average strength of the crude sewage being 1.1823 grains per gallon of albuminoid ammonia and 7.4419 grains per gallon of oxygen absorbed. It will be seen that this process of detritus tank, first contact beds and broad irrigation effects a purification quite equal to closed detritus tanks with triple treatment in contact beds.

For the last eleven years the bulk of the sewage at Leicester has been efficiently purified by broad irrigation on a farm with a heavy clay subsoil; 1,350 acres have been specially laid out on a newly devised method, so that the effluent from the drains, as well as from the surface, can be intercepted and treated over and over again until a high standard is reached; and upon this work we expended about £60,000. Owing, however, to the great increase of the population and the abolition of a subsidiary sewage farm, it was found necessary to enlarge the system of treatment, and these experiments were carried out with the object of deciding: (1) Whether it would be better to increase the area of land laid out, (2) or adopt a system of preliminary clarification with subse-

quent final purification on the land without extension, (3) or even to adopt a complete bacterial treatment to supersede the land.

The results of these experiments proved that the second-mentioned scheme — *viz.*, bacterial clarification and land — gave an effluent at least equal to the best system of bacterial treatment on artificial lines, and the utilization of the land already laid out gives a greater certainty of permanent success than there has yet been time to establish in connection with complete bacterial treatment. One very important fact in connection with this system is that the clarified effluent from the detritus tank and first contact bed does not, when applied to broad irrigation, foul the grass land; in fact, in my opinion, it is an almost ideal process where plenty of land is available. I therefore designed a scheme to deal with our 8,000,000 gallons of sewage a day, comprising detritus tanks with a capacity equal to one-sixth the daily dry weather flow, 12 acres of first contact bacteria beds, the clarified effluent therefrom to be finally purified by broad irrigation, chiefly on old pasture and rye-grass land. This scheme, which includes some additional pumping plant and sewerage estimated to cost about £170,000, has been adopted by the corporation, and is now before the Local Government Board. I may add that so satisfactory has been this combined bacterial and land treatment, that the corporation have, on my recommendation, purchased an additional 1,269 acres of this sewage farm land, which they previously held on a lease expiring in about fifteen years' time.

I will conclude this address by saying that one of the most valuable features of this and of the Sanitary Institute congresses is the municipal section, securing the presence as delegates of the representatives of local government from all parts of the country; and I have found that the more these gentlemen attend and take part in the proceedings and discussions, and the more knowledge they acquire thereby, the greater is the advance of sanitary science in the respective towns and districts they represent, and the weightier is the support they give to their officials in the furtherance of schemes, works and movements for the health, convenience and prosperity of their constituents.

IS TUBERCULOSIS A DISEASE OF ENVIRONMENT ONLY?*

By HENRY MCHATTON, M. D., Macon, Ga.,
Vice-President of the American Congress on Tuberculosis.

In this paper it is proposed to show that considerable numbers of individuals of the Caucasian, Asiatic and negro races have been practically immune from this disease under certain surroundings, whereas under other conditions they have been its victims in large numbers.

Prior to 1860, a vast majority of the negroes in the Southern States and in Cuba lived on plantations. These plantations were to all intents and purposes isolated communities of from one hundred to five hundred inhabitants. The negro quarters were invariably placed in the healthiest available spot, the houses usually consisted of two rooms and were never overcrowded, each room had its open fireplace, and fuel was abundant—thus the best ventilation was secured all the year around. There was ample air space between the houses, and the quarters always had an abundance of shade trees. On account of the climate, most of the idle time was spent out of doors. Absolute cleanliness was enforced in and around the quarters. Each house, whether wood or brick, had its coat of whitewash inside and out, three or four times a year, and oftener if any disease threatened. Communication between plantations was not encouraged, and when any disease became prevalent, absolutely prohibited. The water supply was always a source of solicitude, and the best obtainable secured. All innocent amusements, so dear to the heart of the African, were not only permitted but encouraged. Dissipation of all types was prohibited, and under the existing conditions this prohibition could be easily enforced. There was no mental solicitude, no competition in the ordinary sense, and no care for the future. Work was never excessive, always in the best hygienic surroundings and of the healthiest type, also in proportion to the age, strength and sex of the individual. Food was cooked in the plantation kitchen, abundant, nutritious and well prepared. Clothing was always sufficient and in accordance with the season. As soon as a woman was over her lying-in period, the infant was trans-

*Read at the Third American Congress on Tuberculosis, New York, June 3, 1902.

ferred to the nursery, where it was only nursed at regular intervals, and fed according to its age. Each negro reported in the morning, sick or well; if sick, he went to the infirmary. The doctor visited each plantation once or twice a week, and was called in any emergency. Thus each negro was under constant medical supervision.

In Cuba the arrangement of the quarters was different, they being on the type of the old Spanish barracoon. All other surroundings were practically the same as in the South. On all plantations early to bed and early to rise was the rule, with a long mid-day rest and meals by the clock. Among the very small percentage of negroes who lived in the cities, the plantation rules were carried out as far as practicable. I can state without fear of contradiction that no race of human beings ever lived as healthy a life as the plantation negro in the South. Tuberculosis was practically unknown. I was born on a plantation in Louisiana, and lived on plantations in the South and in Cuba until I was twenty-three years old, and never saw a tubercular negro.

Freedom came. The entire proposition is reversed. They flock to the cities with about as much capacity for self-care as children; hard work, inadequate clothing, poor food, poor houses, overcrowding in insalubrious localities, no attention to the most elementary laws of hygiene, all the mental cares and solicitude that freedom brings. Scant wages, spent in the lowest and most degrading vices at the sacrifice of absolute necessities, irregular hours, with practically no medical attention or care in sickness. To-day the town negro in the South is probably the most tubercular being in the United States.

It is nothing unusual in my practice to see entire families wiped out. In 1900 twenty-one per cent. of the total negro mortality in Macon was from tuberculosis.

About 1860 Spain entered into a coolie contract with China. Under this contract, about two hundred and fifty thousand Chinese were imported into Cuba in the '60's and '70's—the vast majority going to the plantations, where they were put under the identical surroundings of the negro.

These coolies were all men ranging from eighteen to thirty years of age. They were the scum and off-scourings of the cities —principally Canton and Macao—bringing with them the city diseases as well as the city vices, for which China is noted. For obvious reasons, both vices and diseases could be rapidly controlled, and these men were soon put in nearly as good a physical

condition as the negro. There was always, even with the most careful selection, a fair percentage of tubercular cases in each gang of coolies. I can safely say that within the first year this was eliminated either by death or cure. After that there was no more development of the disease. The half breeds from the mixture of the two races, of which there was a large number, were equally immune.

About 1790 there landed at Trujillo, on the Caribbean Sea, a party of Spanish emigrants. This party consisted of members of ten families of the Spanish nobility—families who were so tuberculous that they decided to emigrate rather than become extinct. They worked their way in the course of time across Central America and settled on the Pacific slope, not far from Tegucigalpa, and at an altitude of about twenty-five hundred feet, in probably one of the most even and healthful climates in the world. They have always been purely agricultural and pastoral. Even to-day there is not a road leading to this colony—nothing but trails, and it is a journey of days to reach them from the nearest port. Their village is built in accordance with the climatic requirements. They hold themselves far above the surrounding Indians, and there has been practically no inter-marriage between them and their neighbors. They present the purest strain of Spanish blood in America.

The Indians, ten or fifteen days' ride from this colony, never fail to speak of it—always as "El pueblo de los blancos," the village of the whites—and to extol the physique and endurance of the men as well as the beauty and virtue of the women, which opinion the few specimens that I saw fully upheld.

The history of these people was given me in a personal interview by Don Torencio Sierra, President of Honduras, and a most highly educated gentleman.

Dr. O. B. Hunter, of San Pedro Sula, a graduate of Tulane University, learning their history, became so much interested in them that he spent some time in their village with the sole object of learning their present condition. He met some of the children of the original emigrants, now old men and women, who in every way corroborated the above history.

Dr. Hunter informs me that they are the finest race of people in Central America. After careful inquiries, he could get no history of tuberculosis for a long period back, and at present none of them gives physical evidence of this disease in any of its numerous forms.

In direct contrast to this I have under my care a family of five children, ranging from fifteen up, all tubercular, with the following family history:

Father and mother physically perfect. Paternal grandfather, 82, goes to his work daily at 4 a. m. Grandmother, 80, does her own housework and keeps no servant. Two aunts over 45, healthy. Maternal grandfather, 83, farmer. Maternal grandmother died young of an acute disease. No other children on the maternal side; a remarkably good family history. All of these people, excepting the children in question, have led and are leading healthy and active lives. The father in early married life was placed in easy financial circumstances, built himself a modern house and brought up his children in the usual modern manner: Balls, parties, most assiduous avoidance of all vicissitudes of the weather, late to bed, late to rise, nervous system hypercultivated at the expense of the physical, no rational exercise, no duties to perform; in fact, the complete history of such children so familiar to us; no known source of infection, excepting such as all city dwellers are exposed to daily. It is probably unnecessary to multiply examples.

What would be the rational deduction from those already cited? The negro of the South, practically all Creoles, and a non-tubercular race, changed in a scant forty years to probably the most tubercular race in our country. This by a change of environment only, which change did not even include that of climate.

The Chinese coolie, a most debased subject, with as large a percentage of tubercular cases as would be found in the same number of people from the slums of this city, rendered by change of environment non-tubercular, which immunity extends to his half-breed children.

More remarkable still is the Spanish colony in Honduras. This is not a matter of personal observation, but facts obtained on the best of authority, and of which there seems to be absolutely no question.

Ten families, probably closely related, leaving their own country only on account of tubercular infection—an isolation of more than a century—necessarily a continuous intermarriage, and resulting in a superior non-tubercular race.

The American family mentioned need not be commented on. It is so common that all of you have seen examples.

Gentlemen, again I ask the question: Is tuberculosis a disease of environment only?—From Advance Sheets of "The Bulletin."

SOCIOLOGY AND HYGIENE.*

THE SANITARY OBLIGATIONS BETWEEN THE SOCIAL UNIT AND THE COMMUNITY.

By J. D. PLUNKETT, M. D.,
Former President of Tennessee State Board of Health.

The casual student of current history cannot have failed but to note the fact that during the last half of the nineteenth century there occurred one of the most remarkable epochs in the history of human thought of which there is any record. Its foundations have been literally rebuilt, until to-day as we enter the new century the word change is written everywhere, and we are tempted to exclaim, as a Japanese recently said of Japan, "Nothing remains the same except the natural scenery."

Of the great problems which confront us and which press for solution as we thus stand upon the threshold of the twentieth century, sociology—the science of human society—we find easily to be in the lead.

To sanitary science, one of its chief subdivisions, is assigned the difficult but necessary task of blazing the way, and as its scope, methods and results obtained in these later times are recognized and appreciated, our confidence in its capabilities is strengthened and increased until, indeed, some are beginning to feel that herein will be found the key that is to unlock the portals which shall lead out into the bright light of that coming high noon.

What, then, is this sanitary science? In passing, I will say that "sanitary science," "sanitation" and "hygiene" are interchangeable terms and their use is largely a matter of taste—they will be so used in this paper. In brief, it may be defined as the science and art of preserving health, of prolonging life and of showing how the human species may be perpetuated and developed in the greatest perfection and maintained in the highest efficiency for the labors of peace or the struggles of war. To be more explicit, we will give the words of Dr. Guy:

Hygiene Defined.

"It has to do with persons of every rank, of both sexes, of

*Read at the meeting of the Economic League, Nashville, Tenn., Dec. 9, 1901.

every age. It takes cognizance of places and houses in which they live; of their occupation and modes of life; of the food they eat, the water they drink, the air they breathe; it follows the child through babyhood and to school; the laborer and artisan into the field, the mine, the factory, the workshop; the pauper into the poorhouse or hospital; the lunatic to the asylum, the thief to the prison; it is with the sailor in his ship, and the soldier in his barracks or field life. To all these," he adds, "it makes application of a knowledge remarkable for its amount, and the great variety of sources whence it is derived. To physiology and medicine it is indebted for what it knows of health and disease; it levies large contributions on chemistry, geology and meteorology; it co-operates with the architect and engineer; its work commends itself to the moralist and divine."

Manifestly, then, it is plain that your committee when inviting me to at this time and place read you a paper upon "Sanitation" did not contemplate my covering in a particular, or even in a general, manner a subject which, while so fundamentally important, yet, as we see, is so comprehensive, and one about which volumes —indeed, I may say libraries—have been and are being written.

However, that we may get from our meeting this evening, and particularly from the discussion which is to follow this paper, something more than entertainment, I have taken the liberty of restricting its scope to a consideration, through the twenty minutes allowed me for its reading, to some thoughts on man as the social unit and his sanitary relations and obligations to his fellow-beings, and in turn theirs to him.

Society brings with it special duties and special obligations that are unknown to the hermit in his lonely cell or amid his self-sought solitude in the wilderness, and these duties and obligations grow and multiply in proportion as man's social relations enlarge, and become more intimate, being fewest in the isolated family and most complex in a city whose houses teem with a crowded population and whose streets are resonant with the sounds of business.

Life of the Solitaire.

In the simple life of the solitaire, he has but to consider the hygiene of his own body, mind and soul. The requisite conditions for the preservation of his bodily health are simply these: That food, clothing, light, heat and oxygenized air should be present in sufficient quantity to meet the daily waste of life; to guard the body against injury arising from external

natural agencies, and to secure that amount of light, heat and oxygen which will insure a healthy development of the animal organism. His task is somewhat simple. If it be neglected, the result of the neglect is visited only on himself in the shape of defective vitality, blunted senses, enfeebled constitution and an untimely death. All admit that care for whatever will prevent such a result is a solemn duty that weighs heavily upon every human being, and that he should endeavor to preserve his faculties free from impairment because under such circumstances he can best attempt the solution of the problem which has been specially assigned him. Self-preservation is truly the first law of Nature, and with man the promotion of his physical well-being and comfort is but a logical sequence. In that "greatest poem in the world's great literatures," the Book of Job, Satan is represented as saying "Skin for skin, yea, all that a man hath will he give for his life."

But where the family relation begins to introduce other thoughts than those that belong to the low plane of self, and find their highest object only in the sphere of self-preservation, when the necessities of protection against the rude elements of Nature, and of controlling and subjugating its forces, compel man to seek the aid of his fellow-men and demonstrate the great advantages that spring from co-operation and associated labor, then his obligations rapidly increase. He can be no longer satisfied with what is only connected with his own comfort and convenience, or conclude that he has filled the full measure of his duty when he has but faithfully provided for the wants of his family. Gregarious by nature and habit, everything that affects the physical, mental or spiritual character of his neighbor will indirectly and insensibly make its impress upon him so that he will be forced sooner or later to bear witness, willingly or unwillingly, to the fact that he is not an isolate unit in human society, but is so connected with the other members of his race that what is detrimental to them will be detrimental to him, and what will improve and elevate their condition will in some mysterious way exercise a like influence upon him. So, too, will our sanitary environment be found to determine largely our physical health, as where pure air, water and food, together with the other necessary hygienic conditions, exist, all those who dwell in the locality will be favorably affected and disease will find subjects not very favorable for its development, while the prevalence of unsanitary conditions will result in depression of vital forces and the development

of morbid symptoms, and, if prolonged, in premature decay and death.

Permanent Impressions.

Babbage, in "The Ninth Bridgewater Treatise," sets forth most strikingly the permanent impressions that our words and actions make on the globe we inhabit. "No motion impressed," he says, "by a natural cause, or by human agency, is ever obliterated. The ripples on the ocean's surface caused by a gentle breeze, or the still water which marks the more immediate track of a ponderous vessel gliding with scarcely expanded sails over its bosom, are equally indelible. The momentary waves raised by the passing breeze, apparently born but to die on the spot which saw their birth, leave behind them an endless progeny, which, reviving with diminished energy in other seas, visiting a thousand shores, reflected from each and perhaps again partially concentrated, will pursue their endless course till ocean itself be annihilated."

The imagination can scarce follow the writer in his wonderful portrayal of the permanent influence which our words and actions exercise, but the extract will assist us in comprehending the permanent effects for good or evil that arise from our physical and intellectual surroundings. We cannot avoid these effects; we must be bettered and improved by them, or we shall suffer from their deteriorating influences and be compelled to do battle earnestly and vigorously against them. Hence it is wise to interest ourselves in such surroundings, however perfect our homes may be in all those conditions that insure healthy bodies and minds, and assist in the investigation of those of our neighbors that they may be bettered also.

The question addressed to the sanitarian, as he plods along in his efforts to eradicate the sources from whence disease originates and flourishes, addressed not only by the thoughtless trifler, but by the sensible householder, who with great self-composure is content with having made his own home neat and clean and pure, is just the same as that asked by Cain when God inquired concerning his brother Abel: "Am I my brother's keeper?" Am I in any way so interested in the preservation of my neighbor's health that the duty rests upon me to see that the unwholesome sanitary conditions with which he is surrounded be corrected and remedied, whether this be accomplished through the employment of moral suasion or by the stern authority of law? Upon the affirmative answer to this question hinges that of the propriety and necessity of the creation of health boards with their codes of sanitary laws,

and in addition the organization of auxiliary sanitary associations composed of scientists and philanthropists, men and women, who believe that human life in any form is something worth all the labor, care and love that can be gathered up to make it vigorous, bright and happy.

Demands Upon the Man.

The subtle agencies instrumental in the production of disease are, in many cases, susceptible of being distributed in all directions and in many ways from the person affected as from a prolific focus, impairing the invigorating influences of those conditions which promote health; hence the health and physical well-being of my own household demand that I become interested in the health and sanitary condition of my neighbor. Of what avail are all my efforts to keep my house and grounds sanitarily pure unless my neighbor is alike careful and interested? If he is indifferent to the injurious effects of uncleanliness in his house and grounds, to the offensive odors and repulsive appearance of kitchen and other refuse undergoing decay at his back door, and, as it may be, to the unwholesome and nauseating effluvia that pour forth from an ill-kept stable or the pen where swine are being carefully fattened for family use, does he not thereby so contribute to the pollution of the atmosphere that I and my household are deprived of our Heaven-given right to pure air—an essential to every human being? If he suffers the liquid flowing from the garbage and filth on his premises to percolate through the soil so that the well or spring from whence I am obliged possibly to obtain the water that my family uses for domestic purposes becomes the receptacle of this filthy and germ-filled extract, does he not, by this very criminal carelessness, contribute directly to the introduction of disease into my household and make himself an enemy more insidious and deadly than if he were to declare war openly against me and thus enable me to prepare for the defense of my fireside? Most assuredly.

Thus it is the tenement house or the alley lodging room or dive, with its overcrowded population, all alike indifferent to or ignorant of the laws of health and reeking with foul emanations and overflowing with human beings who seem to have lost all ambition and desire for improvement, whose very countenances are indicative of the physical degradation and general demoralization that reign within, these when located near me become sources of infinite peril and danger to my household. However much I may preach the gospel of health and practice its precepts in my own

premises, the influence of such pest-houses will triumph over precept and example, bearing with them an injurious potency that can only be destroyed by the removal of the conditions that constitute them nuisances, *per se,* and leaves me but two lines of defense against their influence, either to retreat to other and healthier surroundings, or to become interested myself directly in their sanitary purification and the amelioration in some manner of the circumstances which force my neighbor so to dwell. Thus not only is the law of self-preservation emphasized, but that of the brotherhood of man is demonstrated by this mysterious power, for good or ill, that one member of the race exercises over the other.

The Joyous Individual.

In the hey-day of life, when the glow of health flushes the cheek, when the heart beats with happy impulse and joyous rapidity, when the spirits flow with a keen appreciation of all that is bright and cheerful, when a roseate hue invests all Nature and all the events of life with a bewitching charm, when love or friendship binds him to a special object or to the attraction of a chosen few, then that which is revolting, miserable or degrading produces but little impression upon a man. His life is in another sphere and has no sympathy whatever with objects that are commonplace and invested with sorrow. Health always finds it difficult to tolerate the thought of disease. The very idea is repugnant and must be driven afar from the joyous individual lest it bring gloom and unhappiness with it; and, similarly, the miserable condition of those who move on a lower plane of society has no more recognized appropriateness amid scenes of happiness and hours of enjoyment than a hideous, ghastly skeleton amid the glare, glitter and revelry of a ballroom. At such a time the brother who thus is struggling to eke out a miserable existence amid agencies and influences that degrade and brutalize has no recognition. And by some sort of sophistry we persuade ourselves he has descended from another source, and that the human race had not a single starting point, but that there were many instead of one Adam. This neighbor, then, must be looked after, for although he may have no interest for us when health and happiness keep his image from our thoughts, yet, as we have seen, he may be the innocent means of driving these from their apparently secure quarters, and of thus establishing his influence over us in this way if in none other. He has the power of dragging us down to the miserable plane on which he lives, if we will not

bestir ourselves to elevate him to a healthful life. If we will have no fellowship or fraternity with him in our prosperity and success, he will insure such by his power to destroy our felicity and mar our prosperity even when most attractive. Now, if this be so, then are we compelled to undertake the sanitary oversight or guardianship of our neighbor by an argument that addresses itself most powerfully to us, because thereby we protect ourselves from the injury which he may do our families, and at the same time we assist in the establishment and maintenance of those sanitary conditions in the neighborhood which will enable all to contend most successfully against disease.

The interests of the whole community are involved in the sanitary condition of our neighbor, hence we must be his keeper on account of the duty we owe to the community itself. A single case of disease may not only be the focus from which injury shall come to our own family, but may be the cause of disease and death to countless others. The whole community is thus directly concerned with the proper sanitary condition of every house, even the humblest in its midst. Prevention here is far more economical and better than all the antidotes that science can furnish to meet the danger when present. Each case of infectious disease is like an explosive missile thrown into a crowded community; it may destroy all within reach, and consequently no one is safe. Hence the best protection is to spike the gun.

Men Are Bound Together.

The closeness of the health and sanitary relations of the social unit or individual to that of the community as such has only been carefully studied in modern times. Indeed, we find the members of a community are so closely bound together that the term "organic" might be employed as descriptive of the relation existing between them. When any part of the animal body is affected by disease a morbific influence pervades the whole which makes every limb, every muscle—yes, even the minutest part—to suffer from its presence. Similarly, there is no member of a community so unimportant but that his sickness will pervade, sensibly or insensibly, the whole, and should this assume the form of communicable disease, the whole may become involved.

A case of typhus occurs where conditions ripe for its development exist, and straightway its influence is felt, on the right hand and on the left, until the unfortunate has become the most important, because the most dangerous, person in the neighborhood. A

miserable prodigal returns to his father's house after wallowing with the swine of foreign parts, brings with him the seeds of smallpox, which develop and infect all that come into contact with the household, and deformity, or, perhaps, death, is the penalty to friends for exposure to the contagion. And thus a host of diseases may be brought into a community by the exposure of one person to the conditions favoring their development, and these may then spread as "a circle in the water" until the morbific material has asserted its power over thousands, or until sanitary science has proved effective in staying its course. The young, the pure, the good, the best citizen may thus become the victim of a neglect of a fellow-mortal, as all are alike subject to the influence of disease when once developed, and all are interested in the prevention of such development and in the crushing out of the seeds of disease in the very first case where they may have germinated.

A mysterious chain binds us all together. We cannot break this and flee in a cowardly manner from the world and its responsibilities. To mingle with the world and to do battle in it against ignorance and vice is a duty imposed on us all. The heroic individual will endeavor to perform this without fear and with a manly heart; he will, indeed, rejoice that his courage is to be tried in such a contest; he then must look after his less fortunate neighbor, and lend him a helping hand to rise from the filth and degradation into which he may have fallen, whether from ignorance, crime or criminal carelessness. He must aid, because by so doing he is laboring *pro bono publico.*

Health Stands First.

What are all the wealth, refinement, luxury and knowledge held by a community unless they are possessed by those whose bodily health may give the power of enjoying the same and using them for the good of others? Mere empty possessions, devoid of real significance, brilliantly adorned sepulchres full of rottenness and dead men's bones! What are pride of official station and a boasted line of ancestry, when disease cripples the energies and destroys the vital powers, but a sublime mockery? It is good health that is the normal prerequisite to success, whether of the individual or the community. This nerves the arm, strengthens the spirit, toughens the muscle and gives power of doing deeds of daring, or of carrying on the agriculture, manufactures and commerce that betoken prosperity. This makes arts of peace possible and gives significance and efficiency to warlike efforts. This in-

carnates the thoughts and conceptions which the human brain produces and gives them meaning and value for the race. This enables man to do full measure of work that is meted out to him in the very problem of his individual existence, and to solve the same in its best and highest possible form.

But such health is man's possible possession. True, the effects of past errors in ancestors may be transmitted through generations, and many may be thus deprived of this possession in consequence of the ignorance or vice of their forefathers. True, scrofula, consumption and a nameless host of inherited vices of constitution are found all around us, bearing with them suffering, despondency and misery. True, the birthright has been trifled with and impaired by those who should have transmitted it unsullied and untainted. But science enables us to modify and mitigate many of these evils, and by the aid of its teachings we can recover from many of the effects of the impairment and regain the grand birthright, partially if not wholly. Some of the defects of constitution may be removed, some inherited vices may be corrected and the bills of mortality, instead of exhibiting a frightful increase, may be reduced to a rate that can be called normal. All this, to a certain extent, is within our power. The results attained by sanitary science in the past bid us press on along the same line if we would achieve still greater success. There is no rest for the honest sanitary laborer in the cause of suffering humanity, because he finds in active work the greatest sphere of happiness and enduring usefulness; and in the mitigation of suffering, the prevention of disease and the establishment of sanitary conditions favorable to good health, he realizes how noble a thing it is to labor for the elevation and betterment of the race.

The Citizen's Position.

And this brings me to the third reason why we should be interested in our neighbor, because we may thereby make him a more useful member of society, raising him from the condition of a physical pest to that of a public blessing, and in this way actually increasing the resources of the community. Every citizen is either an element of weakness or strength in the body politic, either deprives the community of his own strength, energy, skill and talents as well as that which may be needed to support him in his debility and sickness in the way of actual expenditure and personal attendance, or he adds directly to the general sum of wealth by his natural and acquired talents. Hence sickness and disease

are direct enemies to prosperity, and must be treated as such by the statesman and economist as well as by the sanitarian. The arguments resting upon personal danger and damage to the community appeal to us because of the direct loss which the neglect of sanitary conditions on the part of the brother may inflict on the community, but the present argument demands our special attention, because it involves a consideration of the positive gain to be secured by causing him to conform to the laws of hygiene. A life plucked from the reeking atmosphere of filth, freed from those influences that depress and dull the spirits, and made to glow with health is so much added to the wealth of the community itself. And the obligations to rescue such a life rests upon society beyond the possibility of a release save in its fulfillment. No amount of knowledge or position in the social scale, no secular or religious calling can free one from the obligation to do all that may lie in his power to aid in this rescue. Men are needed, however populous may be the community, and work can always be found for them somewhere within its borders which will enhance its reputation and prosperity. There is room for workers everywhere, and none must be suffered to waste with preventable disease while there exists so widespread and urgent a demand.

The sanitarian who brings one citizen into relations of activity and usefulness, otherwise a burden and a dead weight upon society, contributes directly to the public wealth and deserves recognition as a public benefactor. The field is but little cultivated as yet, although sanitary science has taught us how to work it successfully, but the results are so encouraging that the laborers are rapidly increasing. What is wanted is a thorough knowledge of our obligation to see after the sanitary needs of the submerged classes. Let this once be made known to the people and a healthy public sentiment created which will attach disgrace to all who do not insist upon a careful attention to the laws of health, and action will follow.

A Strong Incentive.

When war is declared against a civil power, whether within or without its borders, and threatens peril to national existence or honor, all hearts are gladdened by the uprising of the citizens in response to the demand for soldiers. The standards are borne aloft by men who hail the flag as something worth living and dying for, and through the dangers of bivouac and camp, of skirmish and battlefield the spirit of patriotism urges men onward to suffering and death. The heroic survivor is greeted by

young and old, by men and women, with huzzas, welcomes and crowns of victory. But here is another field on which death or the subjection of our fellow-men is not the object to be attained. A higher and nobler goal is that toward which we press, a purer and brighter ambition stimulates the soldiers in this army. To bring to active life that which is dying a daily death, to drag from degradation and misery those that may live lives of usefulness and happiness, to bring forth from unsanitary hovels our fellow-beings into purer, healthier and nobler conditions, surely here is a grand duty, a sublime occupation for mankind. And when this also contributes to personal and public protection, as well as to the material wealth of the community of which these unfortunates form a constituent part, does not the duty of caring for their health and providing for their betterment become of so high and imperative nature that to be recognized as such it need only to be presented in its naked and unadorned simplicity?

From what, then, I have attempted in the above discussion the following corollaries become largely axiomatic, and after briefly stating the same, I shall bring this already too long paper to a close.

1. The laws of health and the results of their violation should be freely communicated to the people, so that health officials may secure the cordial aid of the people in their prescribed labors. In order to insure the execution of a law in a republic we must be supported by public sentiment in its favor, and this cannot be secured unless the people are fully informed as to its necessity and importance. Hence the necessity of popularizing the laws of hygiene. Our systems of instruction frequently omit physiology and all that relates to health of mind and body from their courses of study, and many a student graduates at our learned institutions with a smattering of the classics, a vocabulary of metaphysical terms, a meagre knowledge of mathematics and sundry physical sciences, and some superficial acquaintance with history and English literature, but utterly ignorant of the wonderful organism that connects him with the earth and of what may be necessary to keep the same in good working order. This is truly really an opprobrium, from which our learned institutions should free themselves as speedily as possible.

The outlines of physiology and practical hygiene may be readily taught to the upper classes in our grammar schools, and a still more minute and thorough course should claim the scholar's attention as he advances in years and in scholastic attainments, so

that when he leaves the school, whether for professional or practical employment, he may be fitted to lend in an intelligent way a helping hand in whatever concerns the health of the community. Then these subjects should be frequently presented and discussed by competent persons as to their practical application in the Economic League and other similar associations in the community.

Give the People a Chance.

Give the people an opportunity to know something about themselves, and they will begin to take active measures against unwholesome food and drink, defective plumbing, improper ventilation and other health and life-destroying features, and they will not brook delay in the execution of all needed sanitary reforms.

2. The public interest in hygiene should manifest itself in the encouragement of existing health organizations and in the formation of auxiliary sanitary associations to be composed of men and women. By such associations a special stimulus is given to the branch of investigation to which they are devoted. Men always study most thoroughly that which concerns themselves personally and which is directly brought to their attention in their daily contact with their fellow-men and strive to derive most practical benefits from it. However, in associations of the character above suggested the subject itself should be presented practically, and be divested of the abstractions in which mere theoretical study more or less delights, because the membership should not be confined to mere scientific students or to those whose life is devoted to medicine, but should comprise engineers, architects, builders, educators and all interested in education, professional men and mechanics, fathers and mothers; in fact, representatives of every class, occupation and station of life. With such workers in the cause of public health, results may be fairly anticipated that will show diminished rates of mortality in our cities and the introduction of a high rate of health throughout the whole community or commonwealth.

3. Health boards, or better still, health commissioners, for all centres of population from the village up should be established by legal authority and endowed with all necessary powers for the performance of their duties. It is of but little account to establish these unless they are founded upon an intelligent recognition of their importance and necessity, but where sanitary information has been widely disseminated and the people recognize its value in the forming of organizations for its further dissemination and

study, legal health boards will constitute agencies for which they will clamor, in order that these may superintend and systematically carry out all that may be required for the promotion and preservation of the public health. Their necessity arises from the fact that the power of determining and pronouncing nuisances must be lodged in some body recognized by law and invested with sufficient authority to enforce its conclusions. When epidemics either threaten or develop in a community it is necessary that there must be some such feature of government and one, too, which is well versed in the requirements and methods of sanitary science to limit their sphere of disaster and to protect the rest of the citizens.

Work of Health Boards.

Such health boards will also become sources of advice as to the systems of water supply and drainage, and sewerage to be adopted or altered as the case may be, the adulteration, mislabeling and condition of articles of food offered for sale, the ventilation of factories, places of amusement, schools and other buildings in which large numbers are to be collected, the avoidance of certain diseases which spring from vitiated air and a host of other subjects of like importance.

They should be absolutely non-political in their character and composed of experts whose selection solely depends upon their sanitary knowledge and the possession of executive ability; then will the public commit their health interest to them with confidence and will readily lend every possible aid otherwise in the prompt execution of such plans as they may propose and the orders they may issue.

When such is the case, then, and not till then, will true progress be made by society, for then only will man's sanitary relation and obligations to his fellow beings be given systematic emphasis and that intelligent appreciation by himself which is now so much needed and which, as we have seen, is in no particular less real or extensive than are those of the community to him, they being mutually reciprocal and absolutely indissoluble between them.

GOT HIS SHARE.—"I am sorry, doctor, you were not able to attend the church supper last night; it would have done you good to be there."

"It has already done me good, madam; I have just prescribed for three of the participants."—"Richmond Dispatch."

COSMOPOLITAN HEALTH STUDIES.*

By F. L. Oswald, M. D.

XIII.—EGYPT.

The land that rivals the prestige of India as a museum of archæological curiosities bears witness to a fact of greater importance than all the records of warlike monarchs, viz., the permanence of the evils entailed by the earth-blighting insanity of forest destruction.

The Pyramids and the ruins of half a thousand cities are found on the plateaux that skirt the valley of the Nile; yet, for the last two thousand years, a region which once must have been a marvel of productiveness has remained in a state of desolation as complete as that of a volcanic cinder-field. Inducements for reclaiming that land of death have not been wanting. Its elevations offered strategic advantages and deliverance from insect plagues; from the time of the Ptolemys to that of the Turkish stadtholders hundreds of health seekers attempted to reclothe the naked terrace lands with shrubs and trees, but outraged Nature refused to be conciliated. The toil of an incessant struggle with droughts and sand-storms wore out the energy of the refugees and forced them to return to the valley that borrows its bounties from the woodlands in the far interior of the continent.

And in that valley over-population has led to its usual results. Starving farmers sold their birth-right of freedom, real estate magnates flourished at the expense of their tenants; in the river deltas of the lower latitudes monopoly seems to go hand in hand with malaria and mosquito plagues.

A year's sojourn at Wad-el-Roos, in the rice-field district of the Fellahs, might, indeed, have sufficed to modify the dogmatism of Dr. Isaac Jennings, who used to ascribe nearly all the afflictions of the human race to the habit of over-eating.

Dogs do not get a ghost of a chance for bones where the children of the rice-farm Helots prowl in quest of breakfast. They will perch on a sandhill, watching the camp of a tourist for hours

*Continued from page 218.

together, and within five minutes after his departure may be seen rough-and-tumble fighting in the ardor of competition for refuse. They will crunch up dry crusts of bread, swallow egg-shells for the sake of a film of albumen, and masticate wads of wrapping paper with a lingering perfume of fish-oil or butter.

For five coppers a day a ragged youngster will undertake the task of protecting an acre of cereals against winged marauders, and a dozen of these living scare-crows are often employed on the same plantation, but, in their turn, are watched by a steward, who moderates their appetite with a cart-whip if he catches them filching a handful of durrha-corn. There is no doubt that hunger shortens the existence of those poor wretches, but it must be admitted that they make the best of their opportunity for conscious existence. They are up before the sun and contrive to keep wide awake in the blaze of the noonday hour that would overcome a glutton with drowsiness.

Four-fifths of the field laborers are afflicted with sore eyes. Ophthalmia alone would, however, not explain the strange fact that the *harrats,* or dry uplands, are considered unhealthier than the *wadys* (guadies) or swampy river-bottoms. Sand-storms affect the lungs, as well as the eyes, and droughts are, even from a sanitary point of view, a more serious evil than an excess of moisture. In this age of engineering enterprise foreigners of different nationalities have attempted to reclaim portions of the *harrats* by means of artesian wells and windmill pumps. A few of them have succeeded to the extent of keeping a copse of leaf-trees alive and attracting the visitors of the temple ruins with a promise of shade; but the natives who try to utilize the drippings of the pump for truck-farm purposes generally succumb to climatic grievances.

Consumption exists in a country where the Fahrenheit thermometer has rarely been seen within forty degrees of its zero mark. At Sidi Medjit, about half way between Cairo and the first river rapids, Dr. Alfred Wiegand saw emaciated Fellahs racked by a hectic cough, and came to the conclusion that they must have contracted the seeds of their affliction from consumptive travellers and developed it in ill-ventilated hovels, where families of half a dozen persons often share a few cubic yards of breathing space.

Some of the native domiciles are, indeed, mere burrows; others a combination of a dug-out with a frame-work of driftwood. The addition of a few shovelsful of loam suffices to exclude every

draught of fresh air, and the swelter-heat of midsummer nights does not prevent the tenants from "catching cold," as a Caucasian visitor would be almost sure to call it. The little door is kept closed all night, and the children of the lung-sore farmer awaken with a hacking cough.

Change of habitation may bring relief; the eldest daughter has a superior chance of escape and may outgrow a tubercular diathesis in the course of a few years; the less lucky patients will probably consult a *hakim,* or prayer doctor, and pay a couple of dimes for a faith-cure charm.

The sand-dust nuisance can hardly originate tuberculosis, but it seems certain that it helps to lessen the chance of recovery. There are days when the light of the sun is dimmed by a haze of dust-clouds; for hundreds of miles in all directions the air is saturated with minute particles of silica. Under the microscope some of these motes look rounded, but the plurality appear as jagged as chopped flint, and in accumulations cannot help fretting the tissue of the respiratory organs and thus assisting the work of ravening microbes.

The civilization of ancient Egypt would have been wholly incompatible with such vicissitudes. Even within historic times Northern Africa was densely wooded all along the foothills of the Atlas Range, and there is little doubt that forests once extended from the Atlantic to the Red Sea and southward probably far beyond the terraces of the uplands. It is, in fact, probable that the climate of lower Egypt once resembled that of the Mississippi Valley under the same parallels. Cairo, Egypt, and New Orleans, La., are about equi-distant from the equator, and the elevated table lands on both sides of the Nile may originally have been as habitable as Northern Georgia, or the neighborhood of Austin, Tex., where North Italian summers can be enjoyed a thousand miles south of Rome.

Under the Ptolemys the climate of the lower Nile had already become so enervating that the lectures of the pessimist, Hegesias, provoked an epidemic of suicide. Hundreds of his hearers, descended from joy-loving Greeks, threw away life like a burden, and the contagion would have spread to Alexandria if the precursor of Schopenhauer had not been requested to cancel his engagements in the interest of internal revenues.

The vitality of modern Europeans has now and then been sustained by scientific enthusiasm, but generally yields to homesickness before the end of the first summer, especially in the neigh-

borhood of the Red Sea, where local grievances are aggravated by the furnace-breath of the Arabian deserts. As early as the middle of March the afternoon heat almost precludes outdoor exercise. From 2 p. m. till sunset the air vibrates under the influence of a temperature that overpowers newcomers and dims the eyesight even of veteran travellers with fits of vertigo. The explorer, Burkhardt, had a plan to counteract those afflictions by frequent baths—sponge baths, where the pools of the *wadys* were too far apart—but confesses that his recipe could not be relied upon to answer its purpose after the end of May.

"The calms," he says, "are worse than the heat itself; the air stagnates, the pulsations of Nature sometimes seem to stop altogether; feathers dropped from a height of seven feet would descend straight to the ground. There is something abnormal about the atmospheric conditions of Egypt; the mouth of the Nile is the only mountainless part of the Mediterranean coastlands."

It might be worth knowing how the Mamelukes managed to preserve their physical vigor in a climate of that sort. Their ancestors were Circassian—natives of a country almost as bracing-cool as Scotland or Switzerland; yet two centuries after their transfer to the valley of the Nile their physical prowess could still astonish their rivals—the French invaders—whom the campaign of Italy had made nearly fatigue-proof.

"European drill methods," said Napoleon, "would make men of that sort invincible; they are athletes, besides being fanatics and dare-devils, and can be beaten only by a decided superiority of tactics."

In sexual matters those fanatics were no saints, and their climate-proof vigor has been plausibly attributed to the dietetic health laws of their creed. They abstained from pork and wine, and, in spite of all temptations, also from the alcoholic shiftmake beverages of the upper Nile: durrha beer, fermented honey water, etc.

Nor is it improbable that the habit of daily ablutions saved them from the fate of the pious crusaders who in Syria perished of sandfleas and skin diseases.

Northern Europe pretended to have inherited the civilization of Rome, while North Africa was reproached with a penchant for Oriental superstitions, but the fact remains that the Moors founded health schools and thousands of public baths, while their opponents inculcated the merit of self-torture and uncleanliness—in short, of deliberate physical degradation. The countless pre-

cepts of monastic self-abasement cannot be explained away, and only a week ago a well-known Roman ecclesiastic addressed a memorable petition to the head of his church. "In the interest of civilized society and the honor of his creed," says a correspondent of the "London Chronicle," "he begs the Pontiff to grant plenary indulgence to all priests or monks who shall wash themselves daily, with partial indulgence to those shaving regularly at least three times a week, during a specified period. Students of other colleges are easily recognizable by their general neatness and cleanliness, but in the Italian seminaries and monastic novitiates *the traditional sanctity of dirt* still holds sway. In most of them *soap, hair brushes and looking glasses are worldly luxuries excluded by rule,* and the clerics emerging therefrom perpetuate the tradition." ("Daily Chronicle," Sept. 6, 1892.)

Well-to-do Mohammedans are required to wash themselves three times a day; in stress of circumstances, campaigning or travelling, at least once a day; and the Mussulman conquerors of Egypt observed that rule to the letter.

Ibrahim Pasha compelled Egyptian city dwellers to clean their streets at fixed intervals, and after the Wahabee campaign used the tribute of the conquered tribes to import shiploads of trees from the shores of the Euxine and plant them along the banks of the Nile. The first attempts failed, but the experimenters learned to select their vegetable colonists, and the enterprising pasha lived to see his plantations develop into shady groves.

Altogether some 8,000,000 piasters are said to have thus been invested in climatic improvements, and, in the valley regions at least, Nature ratified the bargain, and rain showers have been seen descending on the tree-parks of Ibrahim Pasha, while in the surrounding hills the drought of many weeks was not broken by a single drop. Five showers a year is about the average in Cairo, and nine or ten at Khartoum, but further up stream the climate rapidly mends, and the headwaters of the Blue Nile become booming torrents in June, when the clouds of the rainy season shroud the peaks of the highlands.

Egypt in its present extent includes, indeed, many regions where Caucasian immigrants would thrive as well as in any part of Texas, and, perhaps, better than anywhere in Brazil. Droughts in the Sierras of the Soudan are just persistent enough to dry out disease germs, and there seems to be a moral tonic in the air of the African highlands; travellers have repeatedly called attention to the trouble-proof good humor of African savages and apes as

contrasted with the melancholy Jacques of the South American swamp-forests.

Jovial, chattering Ethiopians, taciturn recluses of the Brazilian woodlands, and for the same reason, perhaps, romping baboons east of the Atlantic, and on the west ring-tailed misanthropists who wake the midnight echoes with their lugubrious howls.

Prince De Ligne, in his essay on the "Location of the Earthly Paradise," went so far as to include Egypt among the three probable cradles of the human race. City builders have left monuments dating back some forty centuries before the beginning of our chronological era, and ages before their arrival agriculturists must have been attracted to the fertile delta of the Nile; yet these pioneers of culture may, in their turn, have been preceded by a thousand generations of half-men. Were they necessarily immigrants? The name of our American aborigines has been pronounced a misnomer on the tenable ground that the evolution of the New World fauna did not reach up to the verge of the anthropoid, and that the gap between the largest spider monkey and the smallest Aztec is too wide to have been passed at a leap.

But the same argument could be used against the claims of the Asiatic continent. Hindostan produces nothing more man-ape-like than the long-armed gibbon; orangs are found only on the Sunda Islands, while Africa boasts two (according to Du Chaillu even five) different species of "primates," including their chief, the physically superhuman gorilla.

The Dark Continent, then, need not plead guilty to the worst of man-producing climates, and when over-population shall compel our descendants to "work the world over again" the homesteads of Northern Egypt will perhaps once more be quoted at a premium.

It can be no accident that the valley of the upper Nile has evolved the largest representatives of some thirty different species of mammals, and it is becoming more and more probable that in the essential conditions of his physical welfare man does not differ very far from his fellow-creatures.

(To be continued.)

ARE VESSELS INFECTED WITH YELLOW FEVER? SOME PERSONAL OBSERVATIONS.*

By Surgeon H. R. Carter.

In a paper read before the American Public Health Association at Buffalo, Sept. 18, 1901, Dr. Doty, the quarantine officer of New York, affirms the absence of secondary cases of yellow fever aboard vessels—*i. e.*, that while cases of this disease contracted ashore develop aboard vessels, yet none is contracted aboard the vessel itself—that is, the vessel does not become "infected" with yellow fever.

The experience of other quarantine officers has been different, and it may be of service then to group some cases already of record in which the contrary was observed. It is not proposed to collate a number of examples of vessels aboard which yellow fever was contracted, from the literature of the subject, but to give very briefly the history of some such vessels personally observed by the writer, from his own notes, during a four years' service (1888 to 1891, inclusive) at the quarantine of the Gulf, Chandeleur and Ship islands. Here were received all vessels believed to be infected with yellow fever bound for all of the Gulf ports, except for New Orleans and from Tampa south. Consequently our clientele was considerable. The bulk of them, however, although certainly the worst class of vessels which entered the Gulf of Mexico, were not, in my opinion, "infected" when I received them —*i. e.*, yellow fever could not then have been contracted aboard them.

I premise here that I accept without reservation the conveyance of yellow fever by an infected mosquito of a certain kind, and that to me a vessel "infected" with yellow fever is simply one which is harboring these infected mosquitoes. Whether they came aboard already infected or, being aboard, became infected by feeding on cases of yellow fever developing aboard ship but contracted ashore, can in general be determined from the history of the spread of the infection. Indeed, it was primarily the history of these and other ships which led to the (tentative) formulating of the laws of the "interval between the infecting and secondary"

*Bulletin No. 9, Yellow Fever Institute, Treasury Department, Public Health and Marine Hospital Service, July, 1902.

cases of yellow fever and the "period of extrinsic incubation of places" of that disease, which, and much else, are so clearly explained by the conveyance by a mosquito host.

The deductions as to the disease being contracted aboard the vessels, when such deduction is made, are, however, independent of the assumption of any theory of conveyance. I do assume, however, that the period of incubation of yellow fever rarely, if ever, exceeds six or six and one-half days.

1888.—SHIP ISLAND.

I. Norwegian bark *Magnolia,* 946 tons, fifty-six days from Rio de Janeiro via Pensacola Bar, rock ballast. Left Rio de Janeiro May 20; left 2 men sick in hospital and had 1 aboard, considered yellow fever. Master sick third day out, May 22; died May 27. All well till June 1, then several (3) got sick at once. First mate sick June 11; died June 17; black vomit. All were sick on the way up except 2; 21 on crew list, including the 2 men left in Rio de Janeiro. One of these who escaped fever had had yellow fever, and the other was a lad from Dantzig on his first deep-sea voyage. In all, 17 men were sick of fever en route, of whom 5 died. The last case, Elias Eliasen, developed June 14. Here, save the captain, all sickened not less than eleven days after leaving Rio de Janeiro, and the first mate and Eliasen on the twenty-third and twenty-sixth days, respectively. They then contracted yellow fever aboard ship.

The picture is that of an infection introduced aboard the vessel by the men who sickened in Rio de Janeiro—*i. e.,* there were uninfected stegomyiæ aboard which were infected from these cases and conveyed yellow fever to the remainder of the crew, except the captain, who contracted it ashore. I did not record the dates of the cases of the men left at Rio de Janeiro; it was shortly before clearing. The interval between an infecting and a secondary case is almost always fourteen days or over.

II. Italian bark *Riagino,* Rio de Janeiro for Pensacola, fifty-one days out; rock ballast, 560 tons. No sickness in Rio de Janeiro until just before leaving, then sent 2 men to hospital. Left five days after. Log shows men were taken June 4 and June 6 and removed on June 6. Sailed on June 10. No one had been ashore save master and steward, using a harbor boat.

First case reported sick en route June 21; 1 next day; 6 sick en route; 3 deaths, June 28, June 29 and July 14, all with black vomit. Crew refused duty at second death. Last case well July

13. Sixteen on crew list; 2 in Rio de Janeiro. Master had had yellow fever; steward sick just after leaving, not considered yellow fever.

Six cases developed ten days after leaving Rio de Janeiro. Same remarks as were made of the *Magnolia* apply here.

No record is made of where these 2 vessels lay in Rio de Janeiro, the writer not then appreciating the importance of this.

1889.

My notes for 1889 are lost, and indeed there may have been in 1888 more than the 2 vessels given above, which should have been included in this paper; but my notes taken at first solely with the view of determining the period of incubation of yellow fever, give data on only these two sufficiently definite to determine that they were infected—*i. e.*, that yellow fever was contracted aboard.

1890.

III. British ship *Avon,* in rock ballast; 22 in crew, 4 immune to yellow fever. Sailed from Rio de Janeiro April 20. All well in port and en route until thirty-eight days out, when a boy in port watch sickened with yellow fever. Taken to hospital, Gulf Quarantine, on third day and died on sixth day. Another case developed two weeks later in a quarantine attendant who helped me clean up the room, sail locker, in which the boy was sick aboard ship.

It is remarkable that there should have been only 1 case of yellow fever among the crew aboard this vessel. At the time it was ascribed to the fact that this boy, the only one on the port watch, helped a man, shipped in Rio de Janeiro and immune to yellow fever, overhaul his chest a few days before the boy was taken sick. Whether there was an infected mosquito in the chest which had survived this length of time, or whether there was any relation between the chest and the fever, may be a question. It in nowise affects the present question, that the disease was contracted aboard. It was the first case seen at this station that year.

IV. British ship *Curlew,* from Rio de Janeiro, with rock ballast. No sickness was reported en route, in port, or on arrival. She was cleaned July 22 to July 23, 1890, and disinfection completed July 25, in the afternoon. One case of yellow fever developed July 27, the sixty-fourth day out, in the early morning before day.

V. British ship *Chippewa,* from Rio de Janeiro, with rock ballast. No sickness was reported in port, en route, or on arrival.

She was cleaned July 26 and July 27, and disinfection completed July 28. One man, the quartermaster, developed yellow fever July 29, at night, sixty-eight days out from Rio de Janeiro.

The *Avon* made no port after leaving Rio de Janeiro and communicated with no vessel en route. The other 2 made no port save Pensacola Bar, and communicated with no vessel save the pilot boats there and off Mobile Bar. The infection in these 3 vessels, then, must have been contracted aboard. They lay in open roadstead at my station, 1½ miles off shore and about ½ mile apart, and there was no visiting between them and none of their crews was ashore.

VI. Spanish bark *Castilla,* fifteen days from Cienfuegos via Round Island Quarantine, in rock and earth ballast; 14 in crew. Eight days out from Cienfuegos to Round Island. All well in port, en route, and on arrival. Mate sickened fourth day after arrival at Round Island while discharging ballast. Vessel sent here in tow Aug. 22. Mate had yellow fever; died on the sixth day of illness. Captain developed yellow fever day after mate's death; taken to hospital. No other cases of sickness aboard; the remainder of the crew are, save 1, Manila men, and all probably immune to yellow fever, being mainly residents of Cuba for many years.

Here 2 men developed yellow fever, 1 twelve and 1 seventeen days after leaving Cienfuegos. The infecting mosquitoes may well have been harbored in the hold, which the mate would probably not have visited until he anchored at Round Island and began discharging ballast, and in which the master would not be apt to go while the mate was on duty.

VII. Spanish bark *Grand Canaries,* seven days out from Havana July 7. All well in port, en route, and on arrival and while in quarantine. Crew probably all immune to yellow fever, being mainly Manila men and old residents of Havana.

O. F., quarantine employé, went aboard as ballast master; next day developed yellow fever, July 11. This man had been exposed to no possible source of infection for the six months previous except this vessel. A case nearly similar to the above occurred in 1889, but I have no notes of it.

VIII. Norwegian bark *Queen of the Seas,* in rock ballast, Rio de Janeiro for Pensacola, fifty-four days out. Left Rio de Janeiro with 17 men; 6 deaths en route. All well in Rio de Janeiro. Lay at Moncanque, a healthful part of harbor. None save master allowed ashore, but he went in ship's boat. Left 1

man at Rio de Janeiro—consumption. Shipped 1 man, a negro, in his place. Sailed April 23; master sick April 26; second mate sick night of May 10; 2 men May 11; 1 man May 12; 2 men morning of 13th; 2 during day of 13th; 1 man sick and 1 died 15th; 1 man died 17th; 2 sick 17th; 1 died 19th; 2 died 21st and 22d; 1 sick 21st; 1 died 25th; 13 sick en route, 5 died. The man shipped in Rio de Janeiro (negro) and 1 of the others immune by previous attack. The picture is very clear of a clean ship, infected by the illness of the master contracted ashore—*i. e.*, had uninfected mosquitoes aboard, which became infected from the master sick of yellow fever, and conveyed it to the crew.

IX. British ship *Curlew*, fifty-seven days from Rio de Janeiro for Pensacola. Lay in the Gamboa last eight days. Two men sick Feb. 27, taken to hospital that day; sailed March 1. Master sick March 1; 5 men besides him that night. Two men March 4, 1 March 5, and 2 more during the day. Two men sick March 7. Two men died the 19th, sickening the 13th and 15th, respectively, both with black vomit. All aboard here, 19, were sick en route except 1, a Barbados negro; but don't believe all had yellow fever, the crew having been badly frightened. The earlier cases and the 3 who died were undoubtedly yellow fever, as were the steward and mate. Here we have 2 cases, at least, developing thirteen and fifteen days after leaving Rio de Janeiro.

X. Swedish ship *Condoren*, seventy-nine days out from Rio de Janeiro via Pernambuco for Mobile. Rock and earth ballast; 18 in crew. All well in port. Lay in Gamboa last five days. No shore leave allowed, but took ship's boat to go ashore. Sailed March 3; 3 men sick March 5; 16 men sick, all told, up to March 26, and 6 deaths. Last man got sick March 26, when she put into Pernambuco short-handed and sent 3 sick men to hospital. Two men sick March 20; 4 men sick March 18; 1 man sick March 26 (really night of 25th). At Pernambuco she lay eleven days and was disinfected by sulphur. Shipped 8 new men, 4, probably 5, of them immune to yellow fever. Developed no sickness on the rest of the way up. Here 4 men developed yellow fever fifteen days from Rio de Janeiro.

XI. German ship *Gustav and Oscar*, Rio de Janeiro for Pensacola. Lay at Cobras, a healthful place. One case yellow fever at Rio de Janeiro, March 22, sent to hospital March 24. No shore leave allowed. Sailed from Rio de Janeiro April 1; first case sickness April 7, 2 men; 3 next day; 1 next morning, and 2 during the day of the 9th. One death on the 10th, leaving 6 men sick.

Captain sick on the 10th at night after supper. Last case on 14th. Two deaths on 11th; 1 on 12th. Crew list shows 21 men left Rio de Janeiro; 14 sick and 4 deaths en route. It is reasonably certain that 4 of the remaining crew were immune to yellow fever by previous attack.

XII. Norwegian bark *Crown Prince,* fifty-eight days out from Rio de Janeiro for Ship Island. Lay at Moncanque. No sickness aboard in Rio de Janeiro. No shore leave granted, and did not use ship's boat to go ashore. Sailed April 29. Master sick second day out (April 30). Next case May 16; 3 (2 aft and 1 forward) became sick. May 17, 2 sick in morning, 1 in the day. May 18, 3 men in forecastle sick. May 20, 2 sick, 1 death. May 21, 1 death, 1 sick. May 23, 2 deaths. May 24, 1 sick. May 28, 1 death last night. May 29, 1 sick this morning. May 30, 1 death. The 1 case on the 29th was the last case taken sick. There were 14 men aboard and every man had fever, 6 dying. She put into Barbados on June 10, disinfected and shipped (in quarantine) 4 new men, 1 probably unacclimated. No more sickness en route. All of these cases, except the captain's, were not less than sixteen days from Rio de Janeiro before developing.

XIII. French ship *Emily Postel,* twelve days from Vera Cruz via Pensacola quarantine. Had "sickness" aboard just before leaving Vera Cruz, 1 man. Sailed from Vera Cruz July 28; no sickness since until crew went to discharge ballast, Aug. 12. One man sick yellow fever Aug. 15, 2 men the same Aug. 19, and 1 man Aug. 20. Disinfection by sulphur was done on the appearance of the first case of yellow fever and no case occurred save the above. All were developed more than sixteen days after leaving Vera Cruz, hence from infection on board. The history points to infection (infected mosquitoes) in the hold.

The picture given by the *Curlew* and *Conderen* are those of disease conveyed by mosquitoes coming aboard already infected just before they sailed. The infection was not introduced by the men who first sickened, the interval between them and the next cases was too short. Observe that they lay in the Gamboa, directly in the lee of a town badly infected. The other two give the usual history of a clean place (town or vessel) infected by some one developing yellow fever, contracted elsewhere, in it.

XIV. Dr. G., assistant surgeon U. S. Marine Hospital Service, developed yellow fever June 18 at the Gulf Quarantine Station, and died June 29. He was immediately from New York, where he had been on duty some months, and had been at the station but

fourteen days when he was taken ill. There had been no case of yellow fever at the station that year. There were a number of vessels in quarantine, but the *Gustav and Oscar* (No. XI) was the only one I judged to be infected. On this vessel, as on the others, he had been with me inspecting, opening up drawers and boxes, and going into every compartment, etc., for the disinfection. I thought his infection was from this vessel. It was certainly from some vessel.

I think it will be granted from the above that the ability of a vessel to carry the infection of yellow fever is no myth. Here are 13 vessels which did so carry it collated from only three years' observation at a single station. Such vessels are indeed rarer, much rarer, now than they were before 1894, yet they still come. I saw 2 at Tortugas in 1894. Other cases are reported by Geddings and by Echemendia at the same place and at Port Tampa quarantine. Rosenau reports a case contracted aboard the steamship *Vigilancia*, from New York, plying between New York and Vera Cruz via Havana, in 1899. The steamship *Bodo*, last year (1900), from Bocas del Toro for Mobile, developed 3 cases of yellow fever, seven, eight and nine days out from Bocas del Toro. It would not be difficult, I think, to multiply instances of recent date, yet that they are rarer is without question. On the factors which have brought this about we can barely touch.

Obviously there are two methods by which vessels can become infected. (*a*) A case of yellow fever contracted elsewhere may develop aboard a vessel already harboring stegomyia mosquitoes which become contaminated from it. (*b*) The stegomyia mosquitoes may come aboard already contaminated. In the first case, there being nearly always over two weeks between the infecting and the first secondary cases of yellow fever, it results that, if the first case occurs after leaving port, vessels, even sailing vessels, from Cuba and the Caribbean Sea will generally reach quarantine and (if at a southern station) be disinfected—*i. e.*, mosquitoes killed, before it is time for the secondary cases to develop, or, indeed, to be contracted. This agrees with all observation. In vessels infected in the second way, cases of yellow fever may occur after a very short or no interval from leaving port. The causes, then, which have lessened the number of infected vessels at United States ports are:

1. The very great falling off of vessels from Rio de Janeiro and Santos since the establishment of the Brazilian Republic. This does away with the bulk of the "long-trip vessels" we used to

have, which are the only ones developing secondary cases en route if infected by a case of yellow fever developing aboard. (Vide *a*.)

2. The replacing of sailing craft by steamships. That steamers convey yellow fever less frequently than sailing vessels has long been known. This is because they lie a much less time in an infected port, and the discipline of their crews is better; no shore leave means no man goes ashore. They also make quicker trips, and thus are not apt to develop secondary cases en route, even if yellow fever contracted elsewhere develops aboard and they have the stegomyia aboard. It is also to be noted that the worst parts of the harbors of Havana and Rio de Janeiro, above San José wharf and the Gamboa, have never been berths for steamships. Note, too, that the sailing vessels displaced are the foreign sailing vessels; the American schooner was less often infected than foreign vessels.

3. Especially since 1893, and to some extent before, supervision had been kept by United States sanitary inspectors in the more dangerous yellow-fever ports over vessels bound for the United States, especially of passenger vessels. Certain anchorages have been recommended as safe, others have been forbidden, notably the Gamboa at Rio de Janeiro and certain wharves and parts of the harbor at Havana. Passengers who it is believed will develop infection aboard have been barred; shipment of new men in the infected port carefully supervised; vessels in which yellow fever has occurred in port are disinfected before leaving, and many other measures taken to have the vessel leave port clean, or as nearly clean as commercial considerations allow. In general, the vessel owners, especially of the regular lines, have given hearty co-operation in these measures, as well as in keeping the crew aboard and in confining the visits of such officers as must go ashore to daylight. These restrictions, especially the last, have by no means been absolute for all classes of vessels, but are well observed, in Cuban and Mexican ports at least, by probably over five-sixths of the tonnage. The sanitary measures to avoid infection (3) and the proportionate substitution of foreign sailing vessels by steamships (2) are without doubt the main factors acting in co-operation in lessening the infection of ships. No one can read Burgess' list of infected vessels in Havana Harbor (Report, U. S. Marine Hospital Service, 1896) without noting how great has been that decrease in recent years.

We have said that if a case of yellow fever develops aboard a vessel harboring the stegomyia mosquito (proper conditions of

temperature being premised) that they may become contaminated by feeding on him and infect others. A vessel which has no stegomyia aboard is like "non-infectible territory" and will not communicate infection, even if cases of yellow fever develop aboard. I think it fair to say that vessels plying to and from southern ports of the United States will, during the summer season, generally have the stegomyia aboard, independently of its berth in tropical harbors, and may at times breed them in their water supply. This mosquito, however, seems to be rare north of Virginia Beach (its distribution has not been sufficiently investigated, however), and a vessel plying to and from a northern port of the United States would not harbor this mosquito unless it came aboard in the tropical port. Now, how far this mosquito goes or is borne from shore has not, I think, been directly investigated, but we do know that the crews of vessels moored off from shore (say 200 or more fathoms) in that part of Havana Harbor seaward from the line between the Sta. Catalina warehouses and the Machina wharf do not develop yellow fever (unless close to some vessel which is infected). This means that contaminated stegomyia, at least, do not go so far from shore. Lying then at the anchorages accounted safe in Havana Harbor, where the passenger vessels for the United States lie, one would think that the probability of any stegomyia coming aboard would be small. At Vera Cruz the vessels must lie nearer shore (although to windward of it), and experience shows that the crews of vessels lying there are not entirely safe, as I believe them to be in Havana, although infection in the part of the harbor picked out as safe is decidedly rare. The anchorages in both harbors regarded as safe are well to the windward of the town all summer. A direct investigation of this matter—*i. e.*, the presence of the stegomyia aboard vessels from northern ports in different parts of the harbor of Havana and other tropical harbors—should be made.

To sum up:

1. Vessels aboard which yellow fever had been contracted—*i. e.*, vessels infected with yellow fever—have not been rare, at least at southern quarantine stations.

2. Such vessels are much rarer since 1893, and are not very common now.

3. That the diminution of the number of infected vessels reaching United States ports is due mainly to the sanitary measures for avoiding exposure to infection in the foreign port, and to the sub-

stitution of steam for sailing vessels. To some degree the falling off of the vessels from Brazilian ports is also a factor.

4. That a case of yellow fever developing aboard a vessel plying between southern ports of the United States and the tropics will probably infect the vessel so that other cases can, if time be given, be contracted aboard her.

5. Such vessels, however, if short-trip vessels, not more than ten or twelve days en route after the occurrence of the case of yellow fever, will in general be disinfected at southern quarantine stations before any other cases have been contracted aboard, although harboring infected mosquitoes.

6. That a case of yellow fever so occurring aboard a vessel from a northern port of the United States would be able to infect her or not according to whether she had acquired the mosquitoes *stegomyia fas.* in the tropical port.

7. It is, in general, then necessary to disinfect all vessels running between southern ports of the United States and tropical ports if a case of yellow fever occurs aboard, no matter where it be contracted; while vessels running between northern ports and the tropics may, through precautions in tropical harbors, have no stegomyia aboard and are thus not infectible by cases of yellow fever occurring aboard.

8. Some vessels giving no history of yellow fever in port, en route or on arrival—even when many days en route—are nevertheless infected and communicate the yellow fever to those who go aboard; *vide* Nos. IV, V, VI, VII. Note, also, the first case aboard the *Avon*, No. III, was thirty-eight days out from Rio de Janeiro. This is probably due to the infection (infected mosquitoes) in parts of the vessels unfrequented by the crew while en route, or to the crew being all immune to yellow fever.

THE SUICIDE RECORD OF 1901.

By FREDERICK L. HOFFMAN.

The suicide record for 1901 presents the usual feature of a gradually increasing tendency to self-destruction in the cities of the United States. The rate per 100,000 of population has changed from 15.8 in 1900 to 16.6 during 1901. The detailed record is for fifty cities, and the conclusions apply to a total city or

urban population of 14,000,000. The large majority of the cities are such as have a population in excess of 50,000, but if all cities of 30,000 inhabitants and over had been included the rate would have been practically the same and the conclusions would have remained unchanged. The annual compilation of statistics of 135 cities with more than 30,000 inhabitants, by the United States Commissioner of Labor, gives a suicide rate of 16.3 per 100,000 for the year 1900. Hence the conclusions deduced from a tabular summary for fifty cities may be safely assumed to apply to all urban communities with a population in excess of 30,000, while for the entire country a somewhat lower rate governs, to which it may not be out of place to give brief consideration.

The census vital statistics for the year 1900, which have recently been published, deal almost entirely with what is called the registration area, or States and cities having a reasonably accurate system of registration of vital statistics. For this area, which includes urban as well as rural communities, the suicide rate is given as 11.8 per 100,000. If this rate is applied to the probable present population of the United States, estimated at 79,000,000, we have an approximate annual mortality of almost 10,000 suicides in the United States.

In the following table the returns for fifty cities have been brought together, the table showing, first, the average actual and relative mortality from suicide in each of the cities during the decade 1891-1900; while, second, the actual and relative mortality from suicide during 1901; and, third, a column has been added showing by plus and minus signs whether the rate during 1901 has been above or below the average for the respective cities during the preceding decade. The cities have been arranged according to the degree of suicidal tendency of the population, as indicated by the average prevailing rates during the decade 1891-1900.

It is shown by this table that the average mortality from suicide during 1891-1900 was equivalent to a rate of 15.7 per 100,000 of population. During the year 1901 the rate was 16.6, an increase of 0.9 per 100,000 of population. The city in which suicide has been of most frequent occurrence during the ten-year period is St. Louis, Mo., while the rate was lowest in Fall River, Mass. In the former city the rate was 25.7 per 100,000 against only 2.9 in the latter. During the year 1901 the suicidal frequency was not exactly the same as established by the ten-year average, but, generally speaking, the cities subject to an excessive mortality from suicide maintained their respective ratios during successive years.

Suicides in Fifty American Cities—1891-1901.

Cities.	1891-1900. No. of Suicides.	1891-1900. Rate per 100,000.	1901. No. of Suicides.	1901. Rate per 100,000.
1. St. Louis, Mo.	1,327	25.7	143	24.3 —
2. Chicago, Ill.	3,282	23.3	399	22.5 —
3. Hoboken, N. J.	123	23.0	22	36.4 +
4. Oakland, Cal.	125	21.5	20	28.9 +
5. New York City (Manhattan and Bronx).	3,769	20.9	470	22.3 +
6. Milwaukee, Wis.	495	19.8	59	20.1 +
7. Cincinnati, Ohio.	562	18.0	73	22.2 +
8. Newark, N. J.	353	16.2	75	29.7 +
9. New Orleans, La.	422	15.9	32	11.0 —
10. Brooklyn, N. Y.	1,557	15.7	191	16.0 +
11. Boston, Mass.	779	15.4	87	15.1 —
12. Indianapolis, Ind.	206	14.9	27	15.2 +
13. New Haven, Conn.	140	14.7	15	13.5 —
14. Jersey City, N. J.	272	14.6	36	17.0 +
15. Rochester, N. Y.	215	14.4	12	7.2 —
16. Washington, D. C.	350	13.7	30	10.6 —
17. St. Paul, Minn.	201	13.5	24	14.4 +
18. Haverhill, Mass.	42	13.3	9	23.2 +
19. Cleveland, Ohio.	430	13.2	56	14.1 +
20. Dayton, Ohio.	90	12.2	7	7.9 —
21. Erie, Pa.	57	12.1	8	14.8 +
22. Passaic, N. J.	23	11.7	2	6.6 —
23. Providence, R. I.	175	11.6	15	8.2 —
24. Louisville, Ky.	204	11.1	26	12.4 +
25. Pittsburg, Pa.	311	11.0	44	13.3 +
26. Philadelphia, Pa.	1,289	10.9	142	10.7 —
27. Minneapolis, Minn.	200	10.8	20	9.7 —
28. Hartford, Conn.	72	10.7	10	12.0 +
29. Baltimore, Md.	503	10.6	57	11.0 +
30. Buffalo, N. Y.	298	9.7	51	14.0 +
31. Detroit, Mich.	241	9.7	49	16.6 +
32. Lowell, Mass.	79	9.2	9	9.3 +
33. Reading, Pa.	63	9.1	8	9.8 +
34. Manchester, Pa.	46	9.0	4	6.8 —
35. Chelsea, Mass.	28	8.9	2	5.8 —
36. Worcester, Mass.	90	8.9	15	12.2 +
37. Elizabeth, N. J.	39	8.7	6	11.1 +

38. Mobile, Ala.	30	8.6	3	7.6 —
39. Fitchburg, Mass. . . .	23	8.5	2	6.1 —
40. Cambridge, Mass. . . .	66	8.0	10	10.6 +
41. Lawrence, Mass.	38	7.1	12	18.5 +
42. Lynn, Mass.	41	6.5	4	5.7 —
43. Orange, N. J.	13	5.8	5	20.5 +
44. Holyoke, Mass.	21	5.1	6	12.8 +
45. Trenton, N. J.	33	5.1	5	6.6 +
46. Somerville, Mass. . . .	26	5.0	5	7.8 +
47. New Bedford, Mass..	21	3.9	7	10.9 +
48. Newton, Mass.	11	3.8	...	... —
49. Camden, N. J.	25	3.8	5	6.4 +
50. Fall River, Mass.	26	2.9	3	2.8 —
Totals.	18,832	15.7	2,322	16.6 +

Of the fifty cities, thirty-one show an increase in the rate, while nineteen show a decrease, when the year 1901 is compared with the average for the preceding decade. The city having the highest ratio during 1901 was Hoboken, N. J., while the city having the lowest ratio was also Fall River, Mass., although no suicides occurred during the year in Newton, Mass. The ten cities with largest suicidal frequency are St. Louis, Mo.; Chicago, Ill.; Hoboken, N. J.; Oakland, Cal.; New York City (Manhattan and Bronx); Milwaukee, Wis.; Cincinnati, Ohio; Newark, N. J.; New Orleans, La., and Brooklyn, N. Y.

If the aggregate returns of the fifty cities are compared by individual years since 1890 it is shown that the indicated increase in the suicide rate has been quite gradual and persistent.

Suicides in Fifty American Cities—1890-1901.

	Total Population (50 Cities).	*Suicides.*	*Suicide Rate per 100,000 of Population.*
1890.	10,202,017	1,223	12.0
1891.	10,499,098	1,465	14.0
1892.	10,805,729	1,409	13.0
1893.	11,102,211	1,764	15.9
1894.	11,447,848	1,773	15.5
1895.	11,785,348	1,839	15.6
1896.	12,131,332	1,934	15.9
1897.	12,478,410	2,161	17.3

1898.....	12,863,239	2,230	17.3
1899.....	13,238,013	2,121	16.0
1900.....	13,631,180	2,156	15.8
1901.....	14,014,808	2,322	16.6
1890-1895.....	65,842,251	9,473	14.4
1896-1901.....	78,356,982	12,924	16.5

The rate for 1890 was 12.0 per 100,000 of population, increasing to 15.6 by 1895 and to 16.6 by 1901. The rates, however, were highest during the two years 1897-8. If we compare the rate prevailing during the first six years with the last, it is shown that the average mortality from suicide was 14.4 per 100,000 during 1890-95, against 16.5 during 1896-1901. The implied conclusion is that a further increase in the rate of suicidal tendency in the cities of this country may be expected during the next decade, and the suicide question, like arson in fire insurance, is thus becoming more and more one of utmost importance to life insurance companies.

The special interest of life insurance companies in the mortality from suicide is set forth in the following table, which has been extracted from the recently published mortality experience of the Mutual Life. The table is for males only, since the mortality of females from suicide is not numerically of sufficient importance to be presented in tabular form:

Mortality Experience of the Mutual Life—1843-1898.

MORTALITY FROM SUICIDE—MALES.

	1843-1885.			*1886-1898.*	
Ages.	*Deaths from all Causes.*	*Suicides.*	*Per Cent. Suicides.*	*Deaths from all Causes.*	*Suicides.*	*Per Cent. Suicides.*
Under 45...	5,702	121	2.1	7,921	311	3.9
45-60.....	6,154	145	2.4	8,694	280	3.2
60.....	4,184	43	1.0	12,308	91	0.7
Unknown...	22	...	...	.....	...	...
Totals ...	16,062	309	1.9	28,923	682	2.4

During the first period, ending with 1885, of the deaths from all causes suicides formed 1.9 per cent., the percentage having increased during the second period to 2.4 per cent. In the aggregate there have been 991 suicides among males during the period

under observation, and the relative increase in the proportionate mortality has been 26 per cent. If separate age groups are considered, it appears that at ages under forty-five the proportion of suicides to the total mortality increased from 2.1 per cent. to 3.9 per cent. At ages forty-five to sixty the increase was from 2.4 per cent. to 3.2 per cent., while at ages sixty and over there was a decrease in the proportionate mortality from 1.0 per cent. to 0.7 per cent. It is therefore evident that there has been a very considerable proportionate increase in the relative mortality from suicide at ages under sixty. Had the proportionate mortality from suicide at ages under sixty during the period 1886-1898 been the same as under the rates prevailing during the earlier period there would have been 377 suicides instead of 591, which actually occurred.

Among females the proportion of suicides was 0.2 per cent. of the deaths at all ages during the first period under observation. The proportionate mortality from this cause increased to 0.9 per cent. during the period ending with 1898. Of the actual mortality from suicide during 1886-1898, 70 per cent. occurred at ages under forty-five, the relative percentage to the mortality from all causes at this age period having been 1.7 per cent. At ages forty-five to sixty the percentage of suicides to the total mortality was 0.8 per cent. It is therefore shown that among females suicides have occurred at a much lesser ratio than among males.

This brief consideration of the subject emphasizes the views previously expressed in the annual review of the suicide record that the subject is one deserving of special attention on the part of all life insurance companies interested in the best possible development of the business.—From "The Spectator," Aug. 14, 1902.

CURIOSITY EXTRAORDINARY.—Among many other remarkable things Montana will send to the world's fair is the tallest man in America. Edward Beaupre, aged 21, is 7 feet, 10 1-2 inches in height, and weighs 367 pounds. He sleeps on the floor in hotels because no bed is large enough to hold him. On the ranch where he has worked five years he often takes a 1,000 pound horse under his arm and carries it about the pasture. He can walk off with 2,000 pounds on a straight lift. Unlike many giants, Beaupre is well developed generally.

EDITOR'S TABLE.

SANITARIAN, OCTOBER, 1902.

☞ All contributions for the textual pages, all exchanges, and all publications for review, should be addressed to the Editor in Chief, Dr. A. N. Bell, 337 Clinton St., Brooklyn, N. Y.

THE HEALTH OF THE CITY.

Mayor Low's "talk," on the resumption of his duties after a brief vacation, Sept. 11, was characteristic of the man, than whom no one has a more lively sense of the first duty of his office—the promotion of the public health. He said, in part:

"The effort to promote the public health takes two forms—prevention of disease and its cure. Of the two, the first is, in a sense, much the more important; or, to be more accurate, it is both easier and better to create conditions that make for health than it is to cure people after they have been taken sick.

"Several years ago I found myself in the company of a distinguished surgeon of New York and of an equally distinguished physician. I took the opportunity to ask upon what fundamental idea or discovery modern surgery was founded. Quick as a flash the physician took up the answer, meanwhile remarking that although the surgeon would not put it exactly as he proposed to, the surgeon, nevertheless, would not be able to gainsay the truth of his statement. The physician then said that a surgeon used to think that the wound was his enemy; but that modern surgery was born when the surgeon learned that he himself was the enemy to be dreaded; that from his hands, his instruments, his bandages, organisms entered into the wound that prevented it from healing. This led to the antiseptic treatment of everything coming near the wound, the effect of which is to destroy these hurtful organisms; and so modern surgery, with its marvelous triumphs, became possible. The physician added that the progress of medicine would be along parallel lines, parallel but not identical; for there were too many avenues by which hurtful organisms could enter the body to make it possible to keep them altogether out, as they could be kept out of a localized wound. On the other hand, he thought we should learn more and more how to render the body safe

against the harmful effects of dangerous organisms, even if they did get in.

Sanitation.

"This reply illustrates very well the two-fold duties of the Health Department in relation to the public health. These duties are partly sanitary; that is, the effort is made to prevent, as far as possible, dangerous organisms from getting a chance to attack the people; and they are partly medical. That is, the effort is made to limit the spread of such disease as may actually get a foothold in the city. The Department of Health is the department mainly charged with these duties. It requires, however, the active co-operation of other departments as well. The Water Department, for example, must keep the water supply free from contamination. The Sewer Bureau must keep the sewers and catch basins clean, and the Street Cleaning Department must keep the streets as free as possible from animal matter and dirt.

"The work of the Department of Health, apart from the record of vital statistics, divides itself into sanitary and medical inspection. On the sanitary side, it aims to correct defective plumbing and drainage, and other matters likely to affect the health of households. It has for its allies in this field the Building Department and the Tenement House Department. It inspects foods, such as milk, meat and even bottled waters, and has the power to destroy the bad and to compel the use by manufacturers and dealers of methods calculated to produce good and wholesome meat and drink. It has power to suppress nuisances, such as are caused by offensive trades, by excessive noise and the like. Along all these lines the Health Department is exceptionally effective at the present time.

"During the first six months of the year, with a force of inspectors smaller than a year ago, it made 51,500 inspections of plumbing against 48,000 last year. Of condemned food, 6,500,000 pounds have been destroyed in 1902, as compared with 3,500,000 pounds in the same period of 1901. The fines collected in the first six months of this year, for attempting to sell impure milk, have been $6,500, as compared with $2,500 a year ago. All of these things show increased attention to the public health. In the matter of noise, many flat-wheeled cars have been removed by the street railway companies under directions from the Department of Health. The sanitary inspection of mercantile establishments has been carried much further than ever before, 7,500 of such inspections having been made this year, against 700 last year.

The City's Fight Against Smallpox and Diphtheria.

"But the effort to prevent disease is not confined to sanitary measures, important as these efforts are. Disease is attacked, also, in its own domain. Smallpox might easily have been epidemic in the city last spring, except for the great activity of the Health Department. Cases were very numerous as it was. The free vaccinating corps performed 700,000 vaccinations in the first six months of this year, as against 300,000 in the spring of 1901. As a result, the threatened epidemic was held in check.

"In this connection it gives me pleasure to say that Dr. Lederle, the health commissioner, although a chemist by profession and not a physician, has visited the smallpox hospital on North Brother Island almost every week since the 1st of January. It is not surprising to learn, therefore, when the health commissioner gives his personal attention to such matters, that many important reforms have been effected in connection with this hospital for infectious diseases. Every pavilion on the island has been renovated; the disinfecting plant has been thoroughly overhauled; a new nurses' home and new quarters for help have been or are being erected, and also open-air convalescent pavilions. A naphtha launch has taken the place of rowboats on the ferry to the island; telephone service has been installed, connecting every ward on the island with the resident physicians' house, and arrangements have been perfected so that friends of patients can readily learn how their relatives or friends are progressing. Cards of instruction are also given to every family from which a patient is removed, informing them how to make their inquiries. A gentleman, removed to North Brother Island last spring, sick with smallpox, from one of the good hotels of the city, wrote, after his recovery, that he had received as good care as he could possibly have had in his own home.

"Diphtheria, as well, is rapidly yielding to medical attack directed along the lines indicated by modern medical science. So recently as 1894 the deaths in Manhattan and the Bronx from diphtheria and croup amounted to 2,900. This year, in the first six months, there were only 589 deaths from those diseases. In this case the Department of Health co-operates with the private physicians of the city, by conducting examinations in the laboratories of the department of matter taken from the throat of the patient. As many as 16,000 cultures, so called, have been examined during the last six months, and the system of culture collection and report thereon has been reorganized and extended all

over the city, so that physicians obtain the information they need much more promptly than heretofore. The department also has treated with antitoxine directly 411 cases of diphtheria in the poorer tenement house districts, and these show a very low mortality.

"Even consumption, that great scourge that carries off about one-eighth of all who die in the city every year, shows some signs of yielding to modern medical attack. There has been a reduction of mortality from this cause, since 1886, of more than 35 per cent.—the equivalent of, say, 3,000 lives per year; and it is estimated that, with sufficient hospital accommodations for the care and treatment of this disease, the death rate can be reduced by one-third more in five years. This would insure the further saving of 2,500 to 3,000 lives per annum.

More Hospitals Needed.

"This leads me to point out the great need of the city for more hospital accommodation for the treatment of infectious diseases. London has 6,500 beds for the treatment of infectious diseases, or one bed for each 1,000 of population; the city of New York has only 750 such beds, or one for each 5,000 of population. London is engaged in adding 1,500 beds to its present supply, and New York, through an issue of bonds, authorized this year, is adding 225 beds. In London, this year, out of nearly 20,000 cases of infectious disease, nearly 88 per cent. were treated in hospitals; in New York only 9½ per cent. were so treated. Modern sanitary science demands the increasing treatment of infectious diseases in hospitals, and New York can no longer afford to neglect this great element of safety. Until bonds were issued for the purpose this year, there was absolutely no provision made either for the disinfecting plants or for the treatment of infectious disease in the three boroughs of the Bronx, Queens and Richmond, having together a population of 500,000 people. An issue of bonds in the sum of $425,000 was authorized this spring for these general purposes, and the most urgent needs are being met; but not less than $2,000,000 ought to be spent within the next three years for infectious disease hospitals alone, to make good New York's appalling deficiencies in this direction. The recent report of the trustees of Bellevue and allied hospitals shows, also, the great need of the city for new and enlarged hospitals for the cure of the sick who are not suffering from infectious diseases.

"The alternatives open to the city are (1) to go without these

hospitals; (2) to pay for them through the tax levy, or (3) to increase the city's borrowing capacity, so that the cost of them may be distributed over many years.

"I am sure that the conscience of New York, to say nothing of its good judgment, will not suffer the city to be less than one-fifth as thoughtful of its sick poor and of its own health as the city of London. I am equally sure that these hospitals cannot be erected through the tax levy. I believe it to be a duty, therefore, for the city to place itself in a position to be able to avail of the credit allowed to it by the constitution of the State, and to place itself as rapidly as possible in the front rank of cities that make adequate provision for the preservation of human life."

SALT WATER FOR THE DUST.

Dust and disease have been long recognized by sanitarians as closely related subjects, and nowhere, to the close observer, more apparent, or with more encouragement, than in the city of New York; particularly in the Borough of Brooklyn. Meanwhile THE SANITARIAN has repeatedly urged the utilization of *salt water* as an exhaustless and economical means for laying the dust, flushing and cleansing the street gutters and trapping the culverts in the low-lying and filthy districts, which, in addition to the dust in the air, are constantly reeking stench and poisoning the neighborhood. Moreover, in the boroughs of Brooklyn and Bronx, where such service is most needed, there has been a scarcity of water during the past summer—as indeed for several summers. The use of salt water for the purpose indicated would be proportionately beneficial in this regard.

It would seem but a small task of engineering skill to render this means available, as compared with the continued outcry for a more plentiful water supply from distant sources.

NEW SURGEON-GENERAL OF THE ARMY.

Brigadier-General William H. Forwood, Surgeon-General, U. S. A., was retired on Sept. 6, on account of age, and was succeeded by Brigadier-General Robert M. O'Reilly. General O'Reilly was until recently at the head of the Medical Corps of the Department of California, and has just returned to Washington from a sanitary inspection of the more important military posts

between that city and San Francisco. He was official physician at the White House during the two terms of President Cleveland.

DIGESTIVE VALUE OF FOODS.

The following are extracts from a bulletin just given out by the State Agricultural Department of Minnesota: The opinion entertained by a great many people that whole wheat and graham bread is more nutritious than that made from standard patent flour, the flour used in every-day baking, is erroneous. When milk was used as a ration with bread, butter, beans, eggs and potatoes all the protein of the milk was digested and, in addition, 4.91 per cent. more of the protein of the other foods with which it was combined was digested than when the milk was omitted. The highest degree of digestibility was secured in a mixed ration. Experiments made with butter showed that it has a high degree of digestibility, 98 per cent. of it being available to the body. Cheese should be used in the diet regularly and in small quantities rather than at irregular intervals and in large quantities, as is frequently the case. Cheese ordinarily is one of the cheapest and most nutritious foods that can be procured. It is possible to secure a larger amount of digestible nutrients and available energy from cheese, costing 15 cents a pound, than from meat, costing 10 cents a pound. Oatmeal, like cheese and beans, is slow of digestion, requiring much intestinal work for the digestive process; but if well prepared and thoroughly cooked it is a suitable food for persons of all habits.

DANGER IN THE CONSUMPTION OF RAW SALADS.

It has generally been conceded ("Sanitary Inspector," August, 1902) that there is quite an element of danger in the consumption of raw salad plants which have been grown upon soil that is possibly infected with disease germs which may be present as the result of the application of stable manure to the soil. All such salad plants should be carefully washed with an abundance of water. A writer in an Italian journal, "Policlinico," concludes as the result of his experiments that such salad plants may be effectually sterilized, so far as disease germs are concerned, by immersing them a half an hour in 3-per-cent. solution of tartaric acid. The cholera spirillum was sterilized in five minutes by a 2-per-cent. solution, and the bacilli of pest and of diphtheria are killed in five minutes by a 5-per-cent. solution of tartaric acid.

THE POSITION OF THE BODY FAVORING DIGESTION.

A recent issue of "Medicine" refers to a communication by a French writer, who states that with the person upon the right side there is a natural gravitation of the contents of the stomach into the pylorus, favoring the passage of food into the intestines. Such a position was held to be of service in the treatment of acute forms of indigestion, and the writer reports a number of cases in which passive stasis of the stomach contents was not relieved by this simple procedure. Recently the subject has been studied by A. Ogarkow (F. v. Maring, "Archiv für Klinische Medicin," 1901, Bd. lxxi), who has determined experimentally that the stomach empties itself most rapidly when the individual is lying upon the right side, and also when he is walking rapidly. When standing, sitting, lying on the left side or walking slowly the conditions are less favorable for the rapid emptying of the organ. When lying upon the back or face, the conditions are less favorable than when upon the right side, but somewhat more so than in a standing position. Recently Link ("Die Therapie der Gegenwart," May, 1902) has examined the subject and comes to the same conclusions. Link is of the opinion that it is important in certain pathological changes in the stomach to have the patient keep a position upon the right side for a considerable time after taking food. It is stated that this simple procedure is of considerable therapeutic value.

UNCLEANLINESS NO LONGER REGARDED AS EVIDENCE OF GODLINESS.

London, Sept. 6.—According to the "Daily Chronicle's" Rome correspondent, a well-known ecclesiastic has forwarded a remarkable petition to the Pope. "In the interests of civilized society and the honor of religion in Italy," he begs the Pontiff to grant plenary indulgence to all priests or monks who shall wash themselves daily, with extra partial indulgence to those shaving regularly at least three times a week during a specified period.

"Students belonging to the Teutonic and Anglo-Saxon colleges at Rome," continues the correspondent, "are easily recognizable by their general neatness and cleanliness, but in the Italian seminaries and monastic novitiates the traditional sanctity of dirt still holds sway. In most of them soap, hair-brush and looking-glass are worldly luxuries, excluded by rule, and the clerics emerging therefrom perpetuate the tradition. The Pope on occasions has evinced annoyance at the unkempt condition of monks who have come in close contact with his august person. Visitors to Italy will heartily welcome the innovation."

STATE'S RIGHT TO MAKE QUARANTINE LAWS.

The United States Supreme Court, June 2, 1902, declared the right of a State of the Union to pass laws excluding the body of a person going into a city or community which is quarantined. The case in which this decision was given is one which was brought against the Louisiana Board of Health by the owners of the *Britannia,* a French steamer which sought to land Italian immigrants in New Orleans in 1898. The city then was infested with yellow fever and a quarantine was in force against it. The Board of Health enforced the State law authorizing exclusion from a quarantined municipality, refusing to allow the immigrants to land. The owners of the steamer took the case to the State courts, where the decisions were against them. There was an appeal to the United States Supreme Court, and it was prosecuted on the ground that the law is a violation of the Interstate Commerce law and also in contravention of the treaty of 1803 with France.

The opinion of the Supreme Court was handed down by Justice White and sustained the State law, on the ground that until Congress takes the quarantine power from the States each State is entitled to make and enforce its own quarantine regulations. Justices Harlan and Brown unite in a dissenting opinion.

PHYSICAL VIOLENCE NOT NECESSARY TO EXTREME CRUELTY.—The Supreme Court of Nebraska says, in the case of Ellison vs. Ellison, that it was formerly thought that to constitute extreme cruelty, such as would authorize the granting of divorce, physical violence was necessary; but the modern and better considered cases repudiate that doctrine as taking too low and sensual a view of the marriage relation. Wherefore, it is now very generally held, as this court here holds, that any unjustifiable conduct, on the part of either the husband or the wife, which so grievously wounds the mental feelings of the other, or so utterly destroys the peace of mind of the other as to seriously impair the bodily health and endanger the life of the other, or such as utterly destroys the legitimate ends and objects of matrimony, constitutes "extreme cruelty" under the statutes, although no physical or personal violence may be inflicted or even threatened.

A ZOOLOGIST FOR THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.

Dr. Charles W. Stiles, who has been zoologist of the Bureau of Animal Industry, Department of Agriculture, has been transferred

to the Public Health and Marine Hospital Service, where he will continue the special work which he has been doing in the investigation of the relations of the diseases of domestic animals to human diseases with a view to the practical application of the knowledge thus gained.

HERBERT M. KING, M. D., APPOINTED AT LOOMIS SANITARIUM.

Dr. Herbert M. King, of Grand Rapids, Mich., has been appointed physician in charge of the Loomis Sanitarium at Liberty, N. Y. Dr. King's name is well known throughout the West for his writings and researches on pulmonary tuberculosis. He will bring to his appointment the skill and experience of an expert.

MORTALITY AND MORBIDITY REPORTS AND REVIEWS.

VIRCHOW.

Of RUDOLF L. C. VIRCHOW, who died at his home in Berlin, Germany, Sept. 7, 1902, THE SANITARIAN was privileged, twenty-five years ago, to publish a brief sketch, with portrait, from a photograph and some notes, kindly sent to the editor by himself. He was even then the most distinguished pathologist in the world for having at that time overthrown the greatest folly that ever obtained in the practice of medicine. With reference to that triumph, in the seventieth volume of his "Archives," then but recently issued, he says of himself: "What anxiety it has cost to uproot the doctrines of the Humoral pathology, buried amidst the ruins of thousands of volumes, and to erect in its place a system based on a knowledge of the tissues, one that forms the true basis of pathology and therapeutics!" This he had done, and, if he had never done anything else, he would have merited the homage that is now awarded him. But from that time to this he has continued to occupy foremost place in the evolution of the *science* of medicine in its noblest aspect—that of preventive medicine. Indeed, it was in this sphere that his aggressive work against chronic fallacies first became manifest. For when he was but twenty-six years old, in 1847, soon after he with Reinhart had founded "Archiv für Pathol. Anatomie und Physiologie," of original research, he was commissioned by the government to visit Silesia for the purpose of adopting the most efficient meas-

ures to prevent the spread of typhus in that country. The results of his observations on the so-called "Hunger Typhus" were published in Berlin, in 1848, under the title: "Communication on Typhus in Silesia" ("Mittheilungen über den oberschles. Typhus").

The Bavarian Government invited him, in 1852, to investigate the causes of a famine then prevailing in the Spessart. This he analyzed in a treatise, "Die Noth im Spessart."

In 1859 the Spedalska, a species of leprosy, raged with unusual severity in some parts of Norway, and the King of Sweden invited Virchow to investigate the cause of the epidemic. His observations on this subject, "Ueber Morbus Spedalska," were subsequently given to the public.

On the 10th of July, 1848, assisted by his friend Leubuscher, he founded the "Medicinische Reform." In the first number he expressed the hope that: "All who felt an interest in the advancement of our beautiful science, the most beautiful department of human knowledge, would take an active part in aiding and encouraging the publishers.*

He wished, also, "to remove the dissensions, the spirit of isolation and indifference to the common interests of the profession, . . . and to excite once more among its members unity, enthusiasm and associated efforts."†

The enterprise did not succeed, and on the 29th of June following he wrote, in the last number: "Medical Reform has had its day, and Sanitary Reform is the question of the hour."‡

He advocated alike "sanitary reform and social reform"; he believed that to preserve the health of the people, especially of the productive classes, was second in importance only to the furnishing to them their daily bread.

Virchow's contributions to sanitary science have been numerous and valuable. He says, however, that very many doctors take no interest whatever in *sanitary* subjects, and that some look on them even with disfavor. In 1848 he published his "Report on Typhoid Fever in Silesia," in which he studied both the sanitary and the

*"Dass alle Diejenigen welche es mit der Entwickelung unserer schönen Wissenschaft, dem schönsten inbegriff menschlicher Erkenntniss gut meinen, die Kräfte der Herausgeber durch thätige Theilnahme stärken und stützen werden."

†"Wohin die Zersplitterung, die Theilnahmlosigkeit, die Isolirung führen, davon giebt der Zustand unserer Medicin ein sprechendes Zeugniss; versuchen wir jetzt einmal wohin Einheit, Enthusiasmus und Verbindung uns bringen können."

‡"Auch die Medicinische Reform hat ihre zeit gehabt, und das vornehmen der öffentlichen Gesundheitspflege geschah zu seiner zeit."

social condition of the people. In 1848 and 1849 he wrote on cholera. It is well known that he and Pettenkofer differed in regard to the etiology of this disease. Virchow does not hold the same views with regard to the influence of ground water with his distinguished rival. In 1856, in an article in the "Gazette Hebdomadaire," he said: "It would, in my opinion, be considering the subject from too narrow a standpoint to regard the predisposing cause as due to a single principle, and to make no allowance for atmospheric, hygienic and other conditions, as well as for individual predispositions." Yet their differences would not seem to be irreconcilable, for, in 1869, he said in regard to the same subject: "I hope that we are approaching still nearer to each other."

In 1862 he published his "Four Lectures on Life and Sickness."

In 1865 appeared his "Studies of Trichinosis," and in 1866 it reached a third edition.

In 1865 he published his essay on "The Education of Women for Their Station in Life."

In 1869 he published his essay, "Some of the Influences of Schools on the Health of Children in After-Life." In 1870, "The First Sanitary Efforts of the Berlin Aid Society."

"The Influence of the Natural Sciences on the National Life of Germany" is the subject of a carefully prepared treatise, published in 1871. In the same year he published a paper on "Lazar Houses and Barracks," and in 1873 a valuable paper on "The Mortality in Berlin."

His best known works on sanitary subjects are his essay on the "Sewerage of Berlin" and "Sewerage or Scavanage."

This proposition he subsequently proposed to modify so as to read "Sewerage *and* Scavanage," because he considered that sewerage was absolutely necessary for all large cities and towns having an abundant supply of water; for small towns, scavanage is the only practical method. His last work of magnitude is on the "Cleaning of Berlin and Its Water Supply, a Report of the Commission Appointed in 1867 to Study the Sanitary Condition of the City." The complete report, of which this is but an abstract, is an exhaustive one in nine parts (Hefte).

These works were the outcome of his charge of the sanitary administration of Berlin, given him on the termination of the war with France in 1870, though comprehending important conclusions to which he had arrived from previous studies.

There is no need of detail on the excellence of his contributions to preventive medicine, so generally are they known and appre-

ciated; or of his works on anatomy, pathology, physiology and clinical medicine, so prominently noticed by our medical contemporaries. A bare catalogue of his works would fill a page.

NEW YORK.—The State is divided into sanitary districts as follows: Maritime District: Includes New York, Brooklyn, Long Island, Staten Island and Westchester County. Hudson Valley District: All the counties on either side of the Hudson River, except Westchester, to and including Albany and Rensselaer. Adirondack and Northern District: The northern section of the State—the counties of Washington, Warren, Hamilton, Essex, Clinton, Franklin, St. Lawrence, Jefferson and Lewis. Mohawk Valley District: Schenectady, Schoharie, Saratoga, Montgomery, Fulton, Herkimer and Oneida counties. Southern Tier District: The seven counties along the southern border of the State. East Central District: Sullivan, Delaware, Otsego, Madison, Chenango, Onondaga and Cortland counties. West Central District: Cayuga, Tompkins, Seneca, Schuyler, Ontario, Yates, Livingston, Genesee and Wyoming counties. Lake Ontario and Western District: Oswego, Wayne, Monroe, Orleans, Niagara and Erie counties.

Bulletin for July, 1902:

Maritime District, 3,948,906: deaths, 6,987; death rate, 21.0; per cent. of deaths under five years, 47.0; from zymotic diseases, per 1,000, from all causes, 326; from cerebrospinal meningitis, 34; from typhoid fever, 64; from malarial diseases, 16; from smallpox, 24; scarlet fever, 98; measles, 43; erysipelas, 17; whooping cough, 87; diphtheria and croup, 142; diarrhœal diseases, 1,739; consumption, 675; acute respiratory diseases, 545; cancer, 230.

Hudson Valley, 690,000: Deaths, 907; death rate, 15.5; per cent. of deaths under five years, 23.0; from zymotic diseases, per 1,000, from all causes, 213; typhoid, 10; scarlet fever, 4; diphtheria and croup, 11; diarrhœal diseases, 89; consumption, 97; acute respiratory diseases, 42; cancer, 28.

Adirondack and Northern, 394,772: Deaths, 385; death rate, 12.0; per cent. of deaths under five years, 21.5; from zymotic diseases, per 1,000, from all causes, 82; from typhoid, 5; whooping cough, 3; diphtheria and croup, 5; diarrhœal diseases, 13; consumption, 52; acute respiratory diseases, 26; cancer, 18.

Mohawk Valley, 419,773: Deaths, 522; death rate, 15.3; per cent. of deaths under five years, 23.5; from zymotic diseases, per

1,000, from all causes, 150; cerebrospinal meningitis, 3; from typhoid, 5; smallpox, 1; scarlet fever, 4; diphtheria and croup, 6; diarrhœal diseases, 57; consumption, 44; acute respiratory diseases, 22; cancer, 29.

Southern Tier, 429,530: Deaths, 423; death rate, 12.0; per cent. of deaths under five years, 16.2; from zymotic diseases, per 1,000, from all causes, 75; from typhoid fever, 6; scarlet fever, 1; whooping cough, 3; diphtheria and croup, 4; diarrhœal diseases, 13; consumption, 38; acute respiratory diseases, 21; cancer, 24.

East Central, 402,660: Deaths, 409; death rate, 12.7; per cent. of deaths under five years, 17.0; from zymotic diseases, per 1,000, from all causes, 75; from cerebrospinal meningitis, 3; from typhoid 4; erysipelas, 3; whooping cough, 3; diphtheria and croup, 3; diarrhœal diseases, 16; consumption, 27; acute respiratory diseases, 16; cancer, 32.

West Central, 316,000: Deaths, 336; death rate, 13.0; per cent. of deaths under five years, 14.5; from zymotic diseases, per 1,000, from all causes, 40; from typhoid, 1; diphtheria and croup, 1; diarrhœal diseases, 7; consumption, 31; acute respiratory diseases, 20; cancer, 17.

Lake Ontario and Western, 876,206: Deaths, 969; death rate, 13.0; per cent. of deaths under five years, 26.5; from zymotic diseases, per 1,000, from all causes, 150; from cerebrospinal fever, 4; typhoid, 12; smallpox, 7; scarlet fever, 3; measles, 9; whooping cough, 10; diphtheria and croup, 8; diarrhœal diseases, 104; consumption, 74; acute respiratory diseases, 60; cancer, 56.

Entire State, 7,467,050: Deaths, 10,938; death rate, 17.5; per cent. of deaths under five years, 38.5; from zymotic diseases, per 1,000, from all causes, 250; from cerebrospinal meningitis, 54; typhoid, 107; malarial diseases, 21; smallpox, 34; scarlet fever, 76; measles, 57; erysipelas, 23; whooping cough, 115; diphtheria and croup, 180; diarrhœal diseases, 2,038; consumption, 1,038; acute respiratory diseases, 752; cancer, 434. Pneumonia and Bright's disease caused respectively 535 and 591 deaths in June, and 400 and 600 in July.

City of New York, 3,632,501: Deaths during the four weeks ended September 13, 5,009; death rate, 17.98; deaths from consumption, 543; diphtheria and croup, 97; measles, 656; scarlet fever, 28; smallpox, 5; typhoid fever, 91; diarrhœal diseases, 904, diarrhœal diseases under 5 years, 839; deaths under 5 years, 2,109.

CALIFORNIA.—San Francisco, 360,000. *Bubonic plague* reported ("Occidental Medical Times" for September). August 6, 17, 19 (2), 20, 22, 23: 7 cases, all Chinamen, and all fatal; total to date, 68.

Los Angeles, 120,000. Report for August: Deaths, 174, 35 under five years; annual death rate, 14.50. Deaths from tuberculosis, 32; natives of the Pacific coast outside of Los Angeles, 10; from other parts, 22; 10 had lived here less than three months, 2 between three and six months, 2 between six and twelve months, 7 between one and five years, 4 between five and ten years, 4 over ten years, 2 life.

COLORADO.—Denver, 133,859. Bureau of Health report for July: Total number of deaths, 236; premature and still birth, 11; deaths from phthisis, 40, contracted elsewhere, 38, contracted in Colorado, 2; death rate per 1,000 per annum, 18.80; deaths from meningeal tuberculosis, 7; pneumonia, 10; typhoid fever, 10; measles, 1; whooping cough, 2; entero-colitis, 20; cholera infantum, 8; cancer, 4.

CONNECTICUT.—By mortality reports received there were 1,348 deaths during August. This was 46 less than in July, and 38 more than in August of last year, and 46 less than the average number of deaths in August for the five years preceding. The death rate was 18.3 for the large towns, for the small towns 16.2 and for the whole State 17.8. The deaths reported from infectious diseases, including diarrhœal, were 503, being 37.3 per cent. of the total mortality.

Smallpox.

The question of prime importance relating to public health at the present time is the prevention of the spread of smallpox. At no time in the history of the United States has this disease been more generally prevalent. The only safety of any individual is by vaccination. The only protection for a community is vaccination. The fact of its protective power is as well settled as any fact in sanitary science.

The general vaccination of a community is in the interest of the taxpayer. The average cost of an epidemic of smallpox in a town is often many times what it would have cost for full protection from it. And with the epidemic comes the cost of both. It is well for prudent selectmen and city councils to think of this.

DISTRICT OF COLUMBIA, 278,880—86,467 colored.—Deaths during the week ended September 6, 1902, 106, as against 92 in the

week preceding and 93 in the corresponding period of last year. The death rates were 18.8 for last week, 16.3 for the week before, and 17.3 for the corresponding period of last year. Of the decedents for the last week, 55 were white (death rate 14.1) and 51 were colored (death rate 29.9). There were 6 fatal cases of typhoid fever and 1, each, of measles and whooping cough; from violence, 7. Of the 6 accidental deaths, 2 were by falling down stairs, 2 by falling from street cars, 1 by drowning and 1 by steam railway accident.

Cases of typhoid fever to the number of 367 were carried forward from the previous week. These were increased by 76 new cases and lessened by 63 discharges, leaving 380 cases under medical treatment at the end of the week. Of smallpox, 1 case remained in the hospital, 2 new cases developed and were taken to the hospital, making 3 patients in that institution at the close of this report. Of scarlet fever, 6 cases were in quarantine at the end of the preceding week; 5 new cases have been reported and there have been no discharges. Of diphtheria, 4 cases in quarantine last week; since that time 4 new cases have occurred and there were 2 discharges. At the end of this report 6 cases are under medical supervision in 6 premises.

ILLINOIS.—Chicago, 1,758,025. Bulletin of the week ended September 13, 1902. At the close of the week there were gratifying indications that the typhoid fever epidemic was abating. The total typhoid deaths reported, 43, were 12 less than those for the previous week, and during the last three days of the week—Thursday, Friday and Saturday—they were only 5, 1 and 2 respectively, or a daily average of less than 3, as compared with a previous daily average of 7 for the six weeks previous. This decrease in the number of deaths, as an indication of the decline of the epidemic, was further corroborated by the returns of cases admitted to the various hospitals. In the County Hospital there were only 240 cases under treatment at the close of the week, as compared with 373 three weeks previous—a reduction of 35 per cent. Although there was some slight improvement in the sanitary quality of the water supply during the week—enough to warrant the department in resuming the characterizing of certain supplies as "good"—the decrease in the typhoid mortality cannot be attributed to this cause. It is due rather to the campaign of education begun by the department nearly two months ago as to the nature and cause of typhoid and the method of its prevention—a

campaign in which the department has been most effectively assisted by the volunteer medical inspectors, the Visiting Nurse Association and the public press. The leaflet of the department and the placard, "Typhoid Fever, the Typical Filth Disease," have been distributed by the thousand through these agencies and by employers in all parts of the city, and it is to this and to the lesson and explanations accompanying that the reduction of typhoid must be credited. Another fact that is construed as an indication that the height of the epidemic has been reached is the increasing duration of the disease in the fatal cases. The average duration of the sickness in the fatal cases in August was seventeen days. During the first thirteen days of September it was twenty-two days and during the last week it was more than twenty-seven days. As the average period of the incubation of the disease after infection with the poison is two weeks, these latter figures show that the infection occurred at least forty-one days previous, or in the latter part of July, when the water supply was badly polluted. Unless the water supply should again become seriously polluted, there is reason to believe that the backbone of the typhoid epidemic is broken.

The total deaths reported for the week (494) are thirty fewer than for the previous week, and four per cent. fewer in proportion to population than for the corresponding week of 1901. The chief reduction is in the deaths of those under five years of age—a reduction chiefly due, as heretofore noted, to the low temperature, which, among other things, has helped conserve the wholesomeness and digestibility of the food supplies of the young, especially milk. Diphtheria and scarlet fever remain unusually low for the season of the year, but whooping cough, which has been abnormally prevalent and fatal during the whole year, continues its excessive contribution to the death rate of the young. Next to scarlet fever, this disease demands the attention of the various investigators of the causes and methods of prevention and cure of the infectious diseases of childhood.

Statement of mortality for the week ended September 13, 1902, compared with the preceding week and with the corresponding week of 1901. Death rates computed on estimated population of 1,820,000 for 1902, of 1,758,025 for 1901:

	Sept. 13, 1902.	Sept. 6, 1902.	Sept. 14, 1901.
Total deaths, all causes.....	494	524	497
Death rate per annum, per 1,000...	14.13	15.00	14.74

By sexes—			
Males	274	293	260
Females	220	231	237
By ages—			
Under 1 year	102	120	123
Between 1 and 5 years	59	70	51
Over 60 years	80	66	94

INDIANA.—The Monthly Bulletin of the State Board of Health reports 3,158 deaths, a rate of 14.8 in August. In the same month last year the deaths numbered 2,932, a rate of 13.7. By certain ages the deaths were: Under 1 year, 701; 1 to 5 years, 365; 5 to 10 years, 60; 10 to 15 years, 51; 65 years and over, 687. Of the total, 23.4 per cent. were under 1 year of age and 23.9 per cent. were 65 years and over. Important causes of death were as follows: Pulmonary tuberculosis, 275; other forms of tuberculosis, 38; typhoid fever, 167; diphtheria, 20; scarlet fever, 7; measles, 5; whooping cough, 20; pneumonia, 69; diarrhœal diseases, 550; cerebrospinal meningitis, 5; influenza, 2; cancer, 104; violence, 129; smallpox, 2.

Morbidity.—Smallpox for the nineteenth consecutive month was the most prevalent disease. Typhoid fever was second in prevalence, having been sixth in July. All but 6 of the 92 counties reported typhoid fever present and the 167 deaths were reported from 65 counties. Of all diseases reported, the order of prevalence was as follows: Smallpox, typhoid fever, diarrhœa, rheumatism, consumption, cholera morbus, dysentery, intermittent fever, tonsillitis, bronchitis, cholera infantum, inflammation of bowels, whooping cough, scarlet fever, influenza, pleuritis, pneumonia, diphtheria and croup, erysipelas, measles, puerperal fever and cerebrospinal meningitis; 245 cases of smallpox in 30 counties and 2 deaths. In July 502 cases in 46 counties and 15 deaths.

IOWA.—At the regular quarterly session of the State Board of Health, at the office of the secretary, Des Moines, August 6, the secretary reported the outbreaks of infectious diseases for the quarter ending July 31 as follows:

Diphtheria: In May, 11 localities; June, 11; July, 7. Total, 29.
Scarlet Fever: May, 12; June, 15; July, 8. Total, 35.
Measles: May, 5; June, 2; July, 1. Total, 8.
Smallpox: May, 37; June, 63; July, 25. Total, 125.
Typhoid Fever: May, 1; June, 3; July, 3. Total, 7.
Whooping cough: May, 2; June, 2; July, 1. Total, 5.

Daily reports have been made to this office from the Health Department in Des Moines and it is a satisfaction to report that there is no case of smallpox at present within the city limits nor has there been for several weeks past. In the cases of smallpox above reported there seems to be no disposition for the disease to spread, because of the prompt measures taken to stamp it out, supplemented by better atmospheric conditions.

Variolinum.—The question of the internal use of "variolinum" as a substitute for vaccination by scarification was called up.

The following resolution was introduced and its adoption moved:

Resolved, By the Iowa State Board of Health, that vaccination for immunization against smallpox is defined as: An inoculation by scarification of the epidermis to the derma and an immediate application thereto of sterile bovine virus, producing in a reasonable time the typical vaccine vesicle and resultant scar, with the associating constitutional symptoms common to such an application.

The resolution was made the special order for the afternoon of the first day of the next meeting.

Outbreaks of infectious diseases reported during the month of July: Diphtheria in 6 localities; scarlet fever in 8; smallpox in 22; typhoid fever in Vinton; whooping cough in Des Moines.

LOUISIANA (New Orleans), 305,000 (81,500 colored).—Mortality report for August, 508—189 colored. Deaths under five years of age, 97—34 colored. Death rates: White, 17.72; colored, 27.82: 19.95. Deaths from pulmonary tuberculosis, 61—29 colored; typhoid fever, 16; intermittent fever, malarial cachexia, 15; diphtheria, 3; tetanus, 8; cancer, 18.

MAINE.—"Sanitary Inspector" for August:—*Some Consolation from Smallpox:* "Vaccination must go" is the refrain found interspersed very plentifully among the paragraphs in anti-vaccination literature. Yes, at times it may go—a little ways, only to come back like the accelerated swing of the pendulum.

There is one philosophical consideration for the well-wisher of the human race when he sees any degree of success follow the teachings of the antivaccinationists and it is this: The greater the number of antivaccinationists the larger the number of cases of smallpox among them, and consequently the sooner the return of the pendulum. The bacteriologist finds that his bacteria, planted in fresh culture media, flourish luxuriantly for a while, then cease

to multiply, and then die. They die from the effects of their own poison. Perhaps the antivaccinationists can see the meaning of this new parable of the bacterium.

In the epidemic of smallpox which the city of Glasgow had in 1900, the death rate at all ages in vaccinated persons was 9.1 per cent., in unvaccinated persons, 51.6 per cent., and in persons doubtfully vaccinated, 54.3 per cent.

MICHIGAN. — The secretary of the State Board reports for August, 1902, compared with the preceding month, diarrhœa, neuralgia, cholera morbus, cholera infantum, dysentery, influenza, typhoid fever, inflammation of kidney, inflammation of bowels and remittent fever were more prevalent; and pneumonia, measles and diphtheria were less prevalent. Scarlet fever, pleuritis and smallpox were more than usually prevalent, and cholera infantum, consumption, dysentery, intermittent fever, inflammation of bowels, remittent fever, measles and diphtheria were less than usually prevalent.

The most dangerous communicable diseases reported by regular observers and others: *Meningitis* at 13 places; *whooping cough* at 39 places; *diphtheria* at 41 places; *smallpox* at 50 places; *measles* at 56 places; *scarlet fever* at 92 places; *typhoid fever* at 148 places, and *consumption* at 227 places. Reports from all sources show *meningitis* reported at 2 places more; *whooping cough* at 13 places less; *diphtheria* at 10 places less; *smallpox* at 63 places less; *measles* at 62 places less; *scarlet fever* at 8 places less; *typhoid fever* at 63 places more, and *consumption* at 30 places less in the month of August, 1902, than in the preceding month.

Smallpox outbreaks since the 1st of January to September 13, 1902, have been caused to cease in 659 localities, and in 380, or 58 per cent. of these outbreaks, *the disease was restricted to the one household where the first case occurred.* Notwithstanding this record of effective work by the health services, State and local, the disease has continued to spread, because in the other outbreaks where the disease was not restricted to the first household, it was first called "Cuban itch," "cedar itch," syphilis, chicken-pox, impetigo contagiosa, or acne, and not reported to the health officers so that restrictive measures could be taken; in a very few instances the fault has been with the health officer himself. Because of such lack of proper reports or proper action, smallpox continued to spread. During the present epidemic the greatest number of places at which the disease was reported present, in any one week,

occurred in the week ending March 29, 1902, when it was reported present in 58 counties at 165 places. It is now present in 17 counties, at 26 places in Michigan, the same number of places as in the preceding week.

Mortality reported to the Department of State for August, 1902, 2,466, a slight increase over the preceding month. The death rate was 11.8 per 1,000 population, as compared with 11.3 for July and 12.2 for August, 1901. There were 585 deaths of infants under 1 year of age; 191 deaths of children aged 1 to 4 years, and 630 deaths of elderly persons aged over 65 years. Important causes of death were as follows: Pulmonary tuberculosis, 158; other forms of tuberculosis, 20; typhoid fever, 45; diphtheria and croup, 33; scarlet fever, 12; measles, 8; whooping cough, 27; smallpox, 3; pneumonia, 88; diarrhœal diseases under two years of age, 325; cancer, 124; accidents and violence, 173.

MINNESOTA.—Minneapolis, 240,000. Registry of deaths for July, 1902: Deaths, 170—47 under five years; death rate, 10.87. Deaths from typhoid fever, 1; scarlet fever, 5; tubercle of the lungs, 22; other forms of tuberculosis, 8; peritonitis, 10; pneumonia and broncho-pneumonia, 7; diphtheria, 5; cancer, 8.

St. Paul, 170,000. Report for July, 1902: Deaths, 127—41 under five years; death rate, 8.96; deaths from diphtheria and croup, 4; tuberculosis of the lungs, 16; pneumonia, 6; cancer, 4.

Sewerage System and Water Supplies.—In the following circular letter the State Board of Health defines its position as to sewerage systems and water supplies:

Section 431 of the General Statutes of 1894 states that the State Board of Health shall have the general supervision of all springs, wells, ponds, lakes, streams or rivers used by any town, village or city as a source of water supply, with reference to their purity, together with the waters feeding the same, and shall examine the same from time to time, and inquire what, if any, pollution exists, and their causes.

In trying to determine the duties of the State Board of Health in relation to water supplies, our attorney, Mr. Harris Richardson, was asked for an opinion. His reply is as follows:

"I am of the opinion that your board has full power and authority to supervise the sources of all water supplies of towns, villages, and cities in this State, with reference to the purity of their water, and full power to examine the conditions of the water supplies, and, in case of the pollution of any thereof, to stop the use of such water whenever the public health requires it.

"In my judgment, examinations with respect to the purity of water supplies should be made from time to time by your board, upon resolution.

"In case at any time you find that pollution of a water supply exists, a time and place may be appointed by your board for hearing the parties to be affected. Notice of such hearing should be given to all parties interested, and if upon the hearing your board determines, in its judgment, that the public health requires it, you may order the difficulty remedied.

"In case your orders are not obeyed, you are authorized to apply to the district court and have your orders enforced.

(Signed) "HARRIS RICHARDSON."

Following this instruction, the State Board of Health, at its meeting July 9, 1902, passed the following resolutions:

Resolved, That from this date all villages, cities and public institutions contemplating putting in new water plants, or repairing or extending old systems, shall submit to the State Board of Health a statement showing the source from which the water is to be taken, and the plans, if any, for purification or filtration of the water.

Resolved, That from this date all villages, cities and public institutions contemplating putting in new sewerage systems, or repairing or extending old systems, shall submit to the State Board of Health a statement showing the course and place of discharge for all sewage from such systems, and the plans, if any, for the purification or filtration of the sewage.

I trust you will appreciate the position of the State Board of Health in its effort to aid the various villages and cities throughout the State in securing and maintaining pure water supplies. It is the wish of the State Board to prevent the construction of unsanitary water plants or sewerage systems, and the consequent waste of money.

MISSOURI.—St. Louis, 621,000—39.000 colored. Report for July, 1902. Deaths, 910—303 under five years. The annual death rate per 1,000 during the month was 17.58, this being based on a population of 621,000, computed on census figures of 1900 (575,200) at the rate of 4 per cent. annual increase. During the month there were 120 more deaths than the previous month. Forty-four certificates were issued for deaths occurring outside the city limits; these are not included in the monthly statement. Percentage of deaths in eleemosynary and other institutions of a public char-

acter to total mortality, 25.27. Percentage of deaths in city institutions to total mortality, 13.29. White population, 582,000; mortality rate per 1,000, 16.40. Colored population, 39,000; mortality rate per 1,000, 29.23. Deaths from zymotic diseases, 194—diphtheria 15, whooping cough 25, cerebrospinal fever 14; other fevers, 12; infantile diarrhœa, 93; phthisis, 105; pneumonia, 26; bronchitis, 6; other diseases of the respiratory organs, 20; cancer, 32.

NEW JERSEY.—Hudson County (Jersey City and environs), 409,810. Report for July, 1902: Deaths, 794—391 under five years; death rate, 23.3; deaths from smallpox, 16; diphtheria and croup, 16; typhoid fever, 9; scarlet fever, 5; diarrhœal diseases, 85; all zymotic diseases, 155; consumption, 71; bronchitis, 13; pneumonia, 40.

Newark, 255,000. Report for the week ending September 6, 1902: Contagious and infectious diseases reported, 35, being an increase over the preceding week of 1; deaths from contagious and infectious diseases, 21; smallpox, 2; cholera infantum, 6; deaths from general diseases, 58; consumption, 7; cancer, 3; deaths from violence, accidents and suicide, 1; total number of deaths reported, 80; death rate, 16.31.

NORTH CAROLINA.—Bulletin of State Board reports for July, 1902: Twenty-six towns with an aggregate population of white, 81,500; colored, 57,650: 139,150. Aggregate deaths, 283—160 colored; 118 under five years; still-born, 21; death rates, white, 18.1; colored, 33.3: 24.4.

Deaths from typhoid fever, 22; malarial fever, 20; consumption, 27; diarrhœal diseases, 57; smallpox reported in twelve counties, an aggregate of 66 cases, no deaths.

OHIO.—State Board of Health bulletin of cases—deaths—of infectious diseases during four weeks ended August 16, 1902: Forty-three places, with an aggregate population of 828,595. Diphtheria and croup, 99 cases, 9 deaths; scarlet fever, 122 cases, 6 deaths; typhoid fever, 177 cases, 25 deaths; whooping cough, 75 cases, 10 deaths; measles, 47 cases, 2 deaths; smallpox, July 26 to August 15, 311 cases, 23 deaths.

About the smallpox in Cleveland and how it was stopped.—The following communication, unsigned (no doubt an oversight), dated August 8, 1902, was received August 11:

August 8, 1902.

C. O. Probst, M. D., Secretary State Board of Health, Columbus, Ohio:

DEAR DOCTOR—In answer to your letter of July 28, 1902, allow me to give you the following:

First—Since January 1, 1902, to August 1 we had 435 cases of smallpox in Cleveland, 60 of which died.

Second—On August 1 we had 74 cases in the hospital and 9 outside of it. These nine were divided into two families, eight developing in one family.

Third—Of the total number, 405 have been treated at the hospital and 30 at their homes.

Fourth—The measures in force to suppress the disease are quarantine, vaccination and disinfection.

Fifth—Since we have vaccine virus which is positively free from pathogenic germs and at the same time active, vaccination is encouraged throughout the city. It is practically enforced where people were exposed to smallpox, as every one prefers vaccination to a seventeen days' quarantine. Where the disease has broken out in larger institutions, as for instance the City Infirmary and St. Vincent Orphan Asylum, etc., every inmate has been at once vaccinated. When it made its appearance in larger blocks the whole block was disinfected. I insist upon vaccination only of the families who have the same closet or the same hallway with the infected family. The rest are told of the danger of smallpox and that they ought to be vaccinated. Furthermore, from July 12 to August 6, I had employed fourteen physicians as investigators and vaccinators at the same time. They worked eight hours a day and went from house to house in the infected district looking for cases of smallpox and vaccinating every one who was willing. These men went back every five or six days and looked over all vaccinations done. In this way we determined which virus was the most active. We are using this—the most active virus—exclusively. Ten of these men were district physicians at the same time. The law department hinted to me that it was illegal to employ them as district physicians and vaccinators at the same time, so I had to let the district physicians go on August 6. The other four are still going on with their work. I shall replace the men I had to lay off and add 100 more if necessary to check smallpox.

Furthermore, I have appointed 24 physicians on the west side of the river, where the disease is most prevalent, as stationary vac-

cinators, where people can go and be vaccinated free of charge. Among these are some of the most prominent physicians of town. I am just making up another list for the east side, appointing from 40 to 50 physicians as stationary vaccinators. The list will appear in the local papers next week, most likely Monday. Furthermore, I have pointed out to the health committee of the Academy of Medicine of Cleveland that to admit children to school on a so-called satisfactory certificate of vaccination is equal to filling the schools with unvaccinated children, as an actual examination showed that hardly one-half of the children were vaccinated, although every one of them had brought a certificate of vaccination to their teacher. This ordinance is changed now. Next fall children and teachers will have to have a certificate of the health officer before they are admitted to school. This means an inspection, a gigantic task, as we have over 100,000 school children, but I assumed the responsibility of having it done.

Last summer I stopped vaccination, for the clinical facts showed that the virus used was not pure. The first point examined produced 2,200 colonies of pathogenic germs. One-fourth cc. of a bouillon culture injected into a guinea-pig killed it within twenty-four hours. Such horrible stuff was advertised as pure vaccine virus and used on human arms. I then promised the people of Cleveland that I would not resume vaccination until I had convinced myself that the vaccine virus was absolutely pure from pathogenic germs. By making an arrangement with three different firms to send me samples of all new lots, such samples to be tested by the bacteriological laboratory, I have obtained virus which is pure and active at the same time and could resume vaccination, keeping my word with the people of Cleveland just as given. Most respectfully,

.....

Health Officer.

As this statement in no way modifies or contradicts the claim that an epidemic of smallpox was arrested in Cleveland by disinfection, without vaccination, the only point at issue, and as this claim has done, and is still doing great harm to the cause of vaccination, the board deems it unwise to longer refrain from publishing all the facts in connection with smallpox in Cleveland. To allow the statement to go uncorrected may induce other communities to abandon this most useful of all measures in fighting smallpox vaccination.

Cleveland, 400,000. Reports for July, 1902: Total deaths, 647—288 under five years of age. Annual death rate, 19.41. Deaths from consumption, 30; pneumonia, 31; broncho-pneumonia, 16; typhoid fever, 12; smallpox, 28; diphtheria and croup, 7; cancer, 20.

PENNSYLVANIA.—Philadelphia, 1,293,697. Report for week ended September 13, 1902: Deaths, 379—116 under five years. Deaths from consumption, 48; cholera infantum, 34; typhoid fever, 13; diphtheria, 6; cancer, 18.

Pittsburg, 346,000. Report of the Bureau of Health for week ended September 13, 1902: Deaths, 120—47 under five years. From diphtheria and croup, 5; typhoid fever, 11; diarrhœa, 13; gastro-enteritis, 4; pneumonia, 8; consumption, 7; cancer, 4.

WASHINGTON.—Seattle, 115,000. Report for August, 1902: Deaths, 89—27 under five years; death rate, 9.28. Deaths from cholera infantum, 9; typhoid fever, 5; diphtheria, 1; cancer, 3.

WISCONSIN.—Milwaukee, 300,000. Report for July, 1902: Deaths, 314—131 under five years; death rate, 12.35. Deaths from typhoid fever, 3; diarrhœal diseases, 58; measles, 4; diphtheria, 5; whooping cough, 8; tubercular diseases, 27; cancer, 19.

CUBA.—Havana, 275,000—73,000 colored. Carlos J. Finlay, sanitary chief, reports the total mortality for July, 584; death rate, 24.98. The increased mortality as compared with that of June (24) is almost entirely due to typhoid fever (+ 13), to tuberculosis (+ 17), cancer (+ 7), and to diarrhœa and enteritis of children under two years old (+ 12).

Since the beginning of the year the monthly reports have been showing an unusual frequency of typhoid fever, the source of which probably lay in the use of raw contaminated vegetables, as pointed out in my previous reports, but the more rapid propagation of the typhoid has apparently coincided with the accident which occurred to the main-pipe of the Vento Aqueduc near Belascoain in the middle of June. During a whole week after the breakage of the main-pipe, the people in Havana had to procure their supplies of Vento water in barrels, demijohns, buckets or other improvised receptacles, while many found it more convenient to obtain their drinking water from wells, cisterns or springs situated in the subsoil of the city in close proximity to sewers or privies. The precautions recommended in my report for June must therefore be insisted upon. The drinking water should be

filtered or boiled, and the milk, during the summer months, should be boiled every six or eight hours, preserved in the same pan in which it has been boiled and kept in a cool place, protected from the dust. It should be borne in mind also that, apart from its liability to turn sour, it may be the means of conveying the typhoid infection through the impure water with which some unscrupulous milkmen are apt to adulterate it, or through that which has been used for washing the pans and cups in which the milk is contained, if the boiling has been omitted.

Another channel through which typhoid fever, like cholera and other intestinal infections, may easily be transmitted in some quarters of the city is the Zanja, which runs at the back of many houses of the Cerro and other districts of the town, and where many of the houses have their privies emptying directly into the said water-course, while others have baths built over it. This department has been carefully investigating this matter and the nuisance, as far as possible, will be promptly abated. In the meantime the Zanja water should not be used for any domestic purposes, nor for bathing, not even for washing the floors.

The only case of yellow fever reported in this island during the month of July was that of a laborer of Gibara, who died on the 10th of the month; but the information so far obtained makes it doubtful that it was a case of yellow fever at all, all the more so as no other case had occurred there in several years, nor has any been reported since, though one-fifth of the population is reckoned as non-immunes.

The showing of the present report is therefore very satisfactory so far as the most dreaded local infections are concerned, with the only drawback of an increase of typhoid fever which, it is hoped, may be brought under control provided that the public takes heed of the recommendations issued by this department and carries them into practice.

CITY OF MEXICO, 368,777. Bulletin for April, 1902: Total number of deaths, 1,840. Prevailing causes of 50 and upward, severally: Diarrhœa and enteritis, 368; pneumonia, 206; typhus exanthematous, 189; tuberculosis, 174; bronchitis, 120; bronchopneumonia, 76; cirrhosis of the liver, 55; diseases of the heart, 53; meningitis, 50. Death rate for the month, 4.98; annual, 49.76.

CHOLERA IN THE PHILIPPINES.

Lieutenant-Colonel M. P. Maus, of the Medical Department of the Army, who has lately been relieved as Commissioner of Public

Health for the Division of the Philippines, arrived at San Francisco on the transport *Meade*, September 12, reports that: "Just before I left Manila, on August 7, the city's daily death rate from cholera was about twenty-five. The cases were found almost wholly among the poorer classes of the natives and in what is known as the Nipa district.

"The contagion never reaches the Americans except as a result of indiscretion on the part of the victims. The disease is taken in through the mouth, generally in food or water.

"Cholera was brought to the Philippines from Hong Kong by ships. I had charge of the first two cases reported, and traced their origin to some vegetables that had been thrown overboard from a Hong Kong steamer and picked up and eaten by natives.

"I instituted the most rigorous measures to prevent an epidemic, but owing to the attitude of the natives this was impossible. They are pretty much all fatalists, and disregard sanitary regulations when they can do so without danger of arrest.

"Sterilized water was supplied to every family in the city. They would sneak through the quarantine lines at every opportunity and eat all kinds of food. While I was there about seventeen hundred cases were reported, of which ninety per cent. were fatal. The epidemic had spread all over the archipelago.

"The advent of the rainy season, contrary to expectations, marked an increase in the number of cases. Cholera hospitals were established everywhere and every known victim was isolated. The worst is certainly over and the cases are growing less numerous day by day. November 1 will, in my opinion, see the disease wholly eradicated.

"Had the Americans not been there, the results would have been as direful as in 1882 and 1888. We fought the disease as hard as we could, and could we have obtained the co-operation of the Filipinos themselves there never would have been an epidemic.

"The Spanish friars troubled us considerably by telling the natives that there was no cholera in the islands. They encouraged them also to disregard our sanitary regulations."

CHOLERA IN EGYPT.

According to latest reports from Cairo to 20th ultimo, Egypt, from Assouan to Damietta, is in the grip of the cholera fiend. The efforts of officials of the Sanitary Department and other officers of the Ministry of the Interior are meeting with little success.

The outbreak has been traced to the Omdeh, or head man, of a

large village in the Assiout Province, who went, with various members of his family, during last spring, on the pilgrimage to Mecca, and at the end of June landed again on his return journey at the quarantine station at Tor, not far from Suez. Here a most elaborate system of quarantine and purification is in force, but the head man and his retinue reached Moucha once more in the early days of July, and at once deaths from cholera occurred among his family and neighbors.

The deaths were concealed from the authorities and it was not until a man was brought into Assiout, seven or eight miles distant, to die, that the reality of the danger became known. Half a battalion of Egyptian troops, under a British officer, was at once dispatched to form a cordon around Moucha and British doctors and sanitary officers were sent up. It was too late, however; the village wells had become thoroughly infected and many people had already fled from their plague-infested homes.

As fast as the disease is extinguished in one place it springs up in another, and of the virulence of the epidemic there can be no doubt, for nearly 80 per cent. of those attacked have died.

The number of fatal cases among Europeans has so far been very small.

In addition to cholera and plague, the rise of the Nile is expected to be the lowest within the memory of man. In this additional calamity there is, however, one redeeming feature—namely, the fact that the Barrage of Assiout, which was closed and shut down a few days ago at, some think, considerable risk, will almost certainly save the agricultural situation in Upper Egypt.

INSECTS AND CHOLERA.

Andrew MacKaig describes an outbreak of cholera in India which seemed to appear almost simultaneously in different parts of the country, but in every case where large numbers of people were gathered together on famine relief works. The chief point of interest is how the disease attacked persons who had no relation whatever to contaminated water and were most careful in all hygienic measures. The number of flies swarming about every article of food was beyond description, and at Godhra, in the house where the author lived, every care was taken to prevent flies settling, and there were no cases of cholera. He holds that the number of cholera cases varied in direct proportion to the number of flies at any given time. Certainly, cholera and flies increased and decreased with each other. Native cholera sufferers are usually

found lying on the floor, covered partially with a few rags, the ground being in a state too awful to be described. A cloud of flies is present, which rise with a loud hum on a motion being made near the patient, but at once settle again. It is hard to see how these flies could escape being cholera carriers.—"Medical Record."

INFANT MORTALITY.—Only 4½ per cent. of the babies born annually live to the end of their allotted (?) threescore years and ten, remarks the "Chicago Clinic." Yet of the other 95½ per cent. nearly 20 per cent. die unnecessarily.

These facts came out in a paper on "Unnatural Death," read at the recent meeting of the English Sanitary Institute. The author told his hearers that about one million babies were born annually in England. Thirty thousand of the million died violent deaths from accident, 30,000 died unnecessarily from tuberculosis, and 120,000 more from absolutely preventable causes, such as small-pox, measles and scarlet fever. Only 45,000 lived their natural lives, and nearly one in twenty died from wearing out. One-fourth of all the diseases which destroy life are preventable, and fifteen years would at once be added if the practice of hygiene were placed on a level with its theory.

NEGRO MORTALITY.—Dr. F. J. Shadd, of the Freedman's Hospital, Washington, D. C., chairman of the Committee on Vital and Sanitary Problems, in his report to the Hampton Negro Conference, recently held, said that "the most fruitful causes of the alarming death rate among the colored people are the following: Infant diseases, tuberculosis, specific infection, gastro-intestinal disease, heredity and environments." His committee is of the opinion that most of these conditions can be changed by the negro himself without the aid of any outside influence. Dr. Shadd says that the death rate of the negro is double that of the whites, except in the army, showing that the negro, *per se,* is healthy and strong, but needs proper environments.

FUMIGATION OF SCHOOL BOOKS.—The Health Department of Buffalo has undertaken to fumigate the 250,000 books used in the public schools. The old books will be placed in large receptacles and fumigated thoroughly with formaldehyde. Health Commissioner Green believes that danger of infection from communicable diseases will be averted in this way.

BOOK REVIEWS.

THE DISEASES OF INFANCY AND CHILDHOOD.—By L. EMMETT HOLT, A. M., M. D., Professor of Diseases of Children in the College of Physicians and Surgeons (Columbia University); Consulting Physician to the New York Infant Asylum and to the Hospital for Ruptured and Crippled. *Second Edition, Revised and Enlarged.* With Two Hundred and Twenty-five Illustrations, Including Nine Colored Plates. Sold only by subscription. Prices: Cloth, $6; half leather, $6.50. D. APPLETON & Co., Publishers, 436 Fifth Avenue, New York.

This work is devoted pre-eminently to the diseases of infancy and young childhood, but, while the emphasis of the author is laid upon disease as it is seen in very young children, it aims to cover the entire field of pediatrics. It contains no exhaustive articles on rare diseases, but the space of the book is devoted to a consideration of those subjects which are of most importance to the general practitioner and the medical student, because they are questions which relate to every-day experience. It is essentially an original work, representing seventeen years of hospital experience among young children.

Among the leading features of the book special attention is invited to the chapters on: (1) *The Care and Diseases of the Newly Born Child;* (2) *Nutrition, its Derangements and Diseases,* in which is given an extended discussion upon breast milk and cow's milk, their composition, examination, tests, etc., together with very full and explicit directions regarding *infant feeding;* (3) *The Acute Diseases of the Lungs and the Intestinal Tract.* The chapters upon these important subjects are very full and contain a great deal of material which is new and original and of eminently practical importance. (4) *The Specific Infectious Diseases.* In the consideration of these, 200 pages are devoted, no less than 50 pages being given to *diphtheria,* which has been brought down to date. The illustrations are eminently *illustrative,* admirably executed, and show pathological appearances in many of the more common diseases. Much space is devoted to clinical descriptions and questions of general and differential diagnosis; and treatment is considered from the standpoint of the practicing physician. Though not encyclopædic, it is singularly comprehensive, but explicit, telling the reader not only what to do, but how to do it. A special chapter is devoted to a description of the various therapeutic measures useful in children. While Dr.

Holt's intimate relation with medical students and young physicians, as Professor of Diseases of Children in the College of Physicians and Surgeons during the last ten years, has enabled him to clearly appreciate and state their needs, he no less effectually comprehends the requirements of the busy practitioner, to whom the work is alike commendable as a source of information on all that is most valuable on the subject.

GENERAL PARESIS, PRACTICAL AND CLINICAL. — By ROBERT HOWLAND CHASE, A. M., M. D., Physician-in-Chief, Friends' Asylum for the Insane, Philadelphia; Late Resident Physician, State Hospital, Norristown, Pa. 12mo. 290 pages. Illustrated. Cloth, net, $1.75. Will be sent postpaid upon receipt of price. P. BLAKISTON'S SON & Co., Publishers, 1012 Walnut Street, Philadelphia.

This book very clearly accomplishes its purpose, as stated in the preface, to present for the use of general practitioners a brief, thorough guide to Symptomatology and Differential Diagnosis, with such instructions for treatment as have been found of value in his large experience.

Paresis is considered in its origin and in each of its successive stages, each symptom being carefully described and the experience of alienists and writers of authority consulted to illustrate, especially from typical cases, the emphatic symptoms useful in diagnosis. While written from the author's own work, his book is of broader significance from this inclusion of many illustrated references from the similar work of others.

The illustrations form a new and more complete series than any heretofore presented. They are reproductions of photographs from the records of the Pennsylvania State Hospital for the Insane at Norristown; and in each stage of paresis are given four or more likenesses most typical of the exact conditions described. While there have been represented portraits of confirmed paretics, there has been no series hitherto published showing the earlier and more or less indistinct and vague symptoms of the disease. The illustrations in this respect reflect a most commendable feature in the character of the text—namely, the effort to give the greatest aid in differential diagnosis and in the recognition of incipient disease.

Founded, as this book is, upon wide observation and experience, and extensive knowledge of the literature of the subject, it is a work of unquestionable value on a subject but sparsely treated of hitherto and fills the place of a long-needed want.

EMERGENCY REPORT ON SURRA.—By D. E. SALMON, D. V. M., Chief of the Bureau of Animal Industry, and CHARLES WARDELL STILES, Ph. D., Pathologist of the Bureau of Animal Industry. With a Bibliography of Surra and Allied Trypanosomatic Diseases, by ALBERT HASSALL, M. R. C. V. S., Acting Assistant Zoologist of the Bureau of Animal Industry. Bureau of Animal Industry Bulletin No. 42, U. S. Department of Agriculture. Washington: Government Printing Office.

A pamphlet of 150 pages on a comparatively rare but dangerous disease of animals, recently brought to the attention of the Bureau of Animal Industry because of its existence in the Philippines and its possible liability to transportation hither. It is described as a "specific and infectious febrile disease occurring in solipeds and camels, and capable of being transmitted by inoculation to other animals. It is due to the presence of a flagellate protozoon (*Trypanosoma Evansi*) in the blood. It is chiefly met with in an epidemic form, during certain months of the year—namely, during, or immediately following, the wet seasons. It is characterized by an intermittent, remittent, and sometimes relapsing, type of fever, which continues for varying periods, from a few days to months, according to the species and the constitutions of the animals attacked, and presents definite symptoms following one another in regular sequence. The chief symptoms, in addition to the fever, are the occasional appearance of an urticarial eruption, general or localized, closely following the first rise in temperature, but which may make its appearance at any time during the course of the disease; then the presence of petechiæ on the mucous membranes, chiefly those covering the membrana nictitans; lacrymation, and the exudation of a yellow semi-gelatinous material into the subcutaneous and other connective tissues. There is rapid wasting and great weakness, although in the great majority of cases the appetite remains good throughout, no matter how high the fever is. There is extreme pallor of the visible mucous membranes, and this is followed at a later period by yellowness. From first to last there is progressive anemia; the blood at first presents a normal character, but after a varying period of time undergoes marked changes. The white corpuscles are increased in number, and the red corpuscles usually cease to form normal rouleaux, lose their individuality and run together, forming irregular masses, which are at first dark, but gradually, as the disease advances, almost entirely lose their coloring matter and become pale. . . . The disease is invariably fatal, death being

generally due to exhaustion, but sometimes to concurrent complications."

It seems to have been long known in India. Also strong reasons for believing that animals have succumbed to it in Abyssinia, the Zambesi, East Africa, Australia, North America, Brazil and Southern Europe. Of its existence in the Philippines, information is as yet rather indefinite. "From present incomplete knowledge of the exact data, it was carried to China by the English troops from India, and that our troops carried it from China to the Philippines."

CONTEMPORARY LITERATURE.

CHILD LABOR REFORM BY VOLUNTARY AGREEMENT.

The Southern movement against the evil of child labor in the cotton factories has been temporarily embarrassed by the act of one of its friends. The president of the Alabama Federation of Women's Clubs, moved by the fact that the cotton manufacturers are among the wealthiest and most cultivated men in the State, issued an appeal that the opponents of child labor should stop working for legislation, and instead work to secure their reform through a "voluntary agreement" among the managers of the mills. This appeal was so attractive to those who are unfamiliar with the historic attitude of the upper classes toward economic reforms that Chairman Murphy, of the Executive Committee which has directed the child labor agitation in Alabama, has issued an effective reply, showing that law alone can secure such restriction as the consciences of the more humane manufacturers would suggest. The central point of his argument is as follows:

"We have no definite nor tangible assurance that the representatives of all the cotton mills in Alabama are ready to offer such a voluntary agreement. The agreement of the best mills without the co-operation of the worst would leave out of account those very points at which there is the most of suffering among the children. Its history is everywhere the same. It has failed in Georgia. It has failed conspicuously in South Carolina. In North Carolina, too, there has been agitation for a child labor law. In order to defeat this effort the mill men of the State covenanted with themselves and with the Legislature that they would not work the younger children at night and that they would refrain from the employment of children under twelve. State Commissioner Var-

ner now declares that this agreement, which was accepted by the Legislature and solemnly spread upon the journals of that body, has been violated. In the report of the Department of Labor for 1901 it is officially recorded that there are in the mills of the State nearly 8,000 (7,996) children under fourteen years of age! Those representatives of the mills who would honestly keep a 'voluntary agreement' to employ no children under twelve, save the orphaned and the children of the widowed and the helpless, could find no hardship in a law containing the same provisions. A law bears upon all alike. A mere agreement binds the best and is violated by the worst."

Even if the mill owners were alone concerned in preventing the exhaustion of bodies and starvation of minds which result from the imprisonment of half-grown and unschooled children in the factories a voluntary agreement among them could not enforce the regulations which a majority of them would wish. The least humane employer could dictate the minimum of requirements by which all should be bound. That the public should accept this method of enforcing the regulations which the public welfare demands is out of the question.—From "The Outlook," September 20, 1902.

THE TAINT OF COMMERCIALISM.

Somebody once defined dirt as "good matter out of place," or words to that effect. So when we speak of the "taint" of commercialism, we do not mean to cast any aspersion upon the true spirit of commerce, or to imply that *per se* it is a thing unworthy. But it must be in place, or its presence becomes a contamination. There are at least two fields wherein the commercial spirit is distinctly not in place—religion and the healing art. It is true that neither the minister of religion nor the minister of health was excluded from the dictum that "the laborer is worthy of his hire"; but recompense for labor and responsibility is not commercialism. That consists in the lust of acquisition, the desire of accumulation, the pursuit of material success, principles which lead rather to the idealization of "getting ahead" than of that perfect work which foreshadows the nearest approach on earth to the time

"When no one shall work for money, and no one shall work for fame,
But each for the joy of the working."

We are startled into these reflections by learning through the

"Lancet" for June 28 of an advertisement in a religious newspaper, by the Benedictine monks of Buckfast Abbey, in Devonshire, England, in which the "Buckfast Abbey Remedies," a tonic, tonic pills, a salve, anti-bilious pills and an antipyretic liniment, are vaunted in the language of the nostrum seller, even to the extent of asserting *inter alia* that the salve will cure "cancerous tumors, wounds, carbuncles, tumors," etc. The "Lancet's" remarks thereon are to the point: "We invite the bishop," it says, "to whom we have referred and the heads of the order which seem to be responsible for these paragraphs to inquire carefully whether the terms in which the goods offered are recommended are justified by the nature of the goods themselves. If not, the buyers are deceived and the sale becomes a questionable transaction in which more than dignity and decency are involved." Once more we will repeat a felicitous aphorism that we quoted recently in another connection: "When religion marries quackery, quackery is the husband, and *one name has to do duty for both.*"—"New York Medical Journal."

PROBLEMS IN EDUCATION.

Perhaps no quality is more characteristic of the work of Booker T. Washington than the sanity of his point of view. His article, "Problems in Education," in the September "Cosmopolitan," deals not only with the work of Tuskegee Institute, but with the educational needs of the entire colored population of the United States. The race problem is not one which can be left to settle itself, and every thinking man or woman should read this valuable contribution to a discussion whose importance will increase rather than decrease in the years to come.

CONSOLIDATING RURAL SCHOOLS.

The new mandate that has gone forth is to the effect that neighboring districts must consolidate in order to build a good central school building, with several rooms and several teachers, and a consequent opportunity for grading the scholars. It is further decreed that the children must be brought to this central school on a co-operative plan, in suitable conveyances for protection from cold and wet and fatigue. Further, it is in the air that the new consolidated country school must adapt its methods of instruction to the real conditions of life. It must be a social and intellectual centre for grown-up people as well as for the children of the region. It must have an ample piece of ground, and this must be kept in the most perfect order, as one of the primary interests and

duties of the school. Nature study must enter largely into school life and work, and a positive taste for rural pursuits and for the elements of the natural sciences must be inculcated. The school grounds must furnish object lessons in the planting and maintenance of trees and flowers, and, in so far as possible, may well be utilized to teach practical gardening. A certain amount of manual training for both girls and boys should enter into the work of the school, and every neighborhood should strive to surpass all others in its zeal to secure good teachers by offering proper inducements.—From "The Progress of the World," in the "American Monthly Review of Reviews" for September.

OVER THE HILLS.

A Sketch, by Doris Francklyn (Age 15).

Tommy longed to be a painter, but his hopes grew faint and fainter. His teacher said: "Just as you see put in your colors bold and free." Over the hills in purple west, the sun was sinking to its rest. "A lovely picture I shall make," quoth Tom. "I'll use my crimson lake." Goodness! Ere he'd time to think, the heavens were a sweet rose-pink. Then, before his very eyes, to his wondering surprise, yellow, red and purple rays followed in a perfect blaze. Tommy gazed with much delight, and suddenly realized that 'twas night! Our friend resources did not lack; he brushed his canvas o'er with black.—A Contribution to the September "St. Nicholas League."

WIDE STREETS.

A narrow residential street may be a very attractive one if the houses stand well back from the street line, with pleasant grounds about them. In a growing town, however, the danger from such conditions comes with the liability to convert the street to business purposes, or to erect more compactly disposed dwellings. If business comes in, the transition is commonly marked by jagged lines. Commercial structures, often of a cheap and undesirable aspect, are built out to the street, while the dwellings stand recessed back at irregular intervals. And when at last the street is fully occupied for business purposes, it is altogether too narrow; the roadway and the sidewalks are cramped, and often a widening has to take place at the public expense. If built up closely to the line with dwellings, the street is likely to lack air and sunshine, and the tendency is toward squalid conditions.

An excellent remedy for these evils is offered in the Massachusetts law that empowers municipalities to establish building lines

at any desired distance back from the street line. When such a line is established, no buildings can be erected on the intervening space. The municipality acquires an easement in this strip of land, which can still be used by the owner for anything but building purposes, and, on the establishment of such a line, owners may claim damages, as in case of takings for a street widening.

Ideals for attractive street planning are to be found in many parts of the United States. There is nothing more charming as a rural street than that of a New England village at its best—lofty aisles of leafage, the trees with feet in a carpet of turf at the sidewalk border; the houses, quiet and unobtrusive, standing well back, and marked with the true home character, whether they are humble cottages or abodes of the rich. The noblest development of such rural streets is to be found in the old towns of the Connecticut valley and in Western Massachusetts. There the main highways have an extraordinarily generous width, often giving room for quadruple rows of old elms and broad spaces of turf, the roadway requiring only a narrow space in the total width of the thoroughfare.—Sylvester Baxter in the September "Century."

NEWS FROM PROCTOR'S.

All four of Manager Proctor's New York theatres are now open for the season; in fact, the Fifty-eighth Street was the only theatre on the Proctor circuit which closed during the summer. Extensive alterations and a complete refitting of the interior of this popular East Side house have been accomplished during the period of closure.

The One Hundred and Twenty-fifth Street's permanent will include many of last season's favorites. Adelaide Keim will be leading lady and Ned Howard Fowler will be leading man. Others will be Sol Aiken, Charles M. Seay, Sadie Handy, Hudson Liston, Ivah M. Wills and Loretta Healey.

At the Fifth Avenue, James Wilson will be the leading man with a strong working company of favorites. Florence Reed, Mrs. Ada Levick, Margaret Kenmore, Florence Leslie, Frank A. Thompson, George Edwin Bryant, Charles W. King and Paul McAllister will be located on Broadway.

The Twenty-third Street will continue presentations of refined vaudeville in continuous performance. The best American and European vaudeville novelties will be seen at this house as well as at Proctor's Newark Theatre. Proctor's Montreal and Albany theatres will have stock company presentations of the best comedies with occasional bills of vaudeville by way of variation.

SANITARY SCIENCE.

A SYNOPSIS OF SANITARY SCIENCES AS REPRESENTED IN THE SANITARIAN, ALPHABETICALLY.*

BY THE EDITOR.

Hollick, A., The Waring System of Sewerage, xxiii, 221.

Holland, Dr., Hygiene and Consumption, vi, 399; Legislation Against Tramps, 499; Surf Bathing and Swimming, xxxix, 226.

Holland and the Boers, Hutton, xliv, 380.

Holmes, B., The Evolution of Infection, xxv, 24.

Holmes, Oliver Wendell, with Portrait, xi, 337; Poem by, at Banquet in Honor of His Seventieth Birthday, 489; Triumphs and Inducements of Preventive Medicine (letter), xxviii, 514.

Holmes and Whittier, Geo. Wm. Curtis, xiv, 62.

Holt, J., Disinfection at the Mississippi Quarantine Station, xiii; Quarantine Improvements, 140, 152; Quarantine and Sanitation, 484; xiv, 537; Sanitary Protection of New Orleans, xvi, 37; Sufficiency of Steam Heat as a Disinfectant, xvii, 331; Quarantine Defenses of the Mississippi Valley, xix, 444; New Orleans, to be Saved, Must be Cleaned and Drained, xxi, 515; The System of Maritime Sanitation, xxix, 169.

Holton, H. D., State Medicine, xxxv, 19.

Holway, D. N., Life Insurance, xv, 264.

Holyoke, M. D., Tenements in London, xxx, 511.

Holy Stone, The Passing of the, xxxviii, 51.

Home, ii, 65.

Home of the Beautiful, J. B. Kenyon, xxxviii, 135.

Home Missions, xxv, 480.

Home Sanitation, Moreau Morris, xxxiv, 385; Mrs. Esther A. Powell, xli, 3.

Homes for the Laboring Classes, Park Godwin, D. B. Eaton, C. F. Chandler and Stephen Smith, iii, 225, 145.

Homes for the People, R. T. Paine, iii, 355; Jas. Bintliff, viii, 445.

Homes of the Working Classes, State Control in Reference to, Ravenstein *et al.*, xxvii, 531.

Homœopathic Hen, The, xxxi, 50.

*Continued from previous number.

Homœopathy in the United States, viii, 506.
Homœopathic Therapeutics, xxii, 189.
Honesty and Cleanliness, Brooklyn "Eagle," xxxix, 496.
Honeyman, J., Advantages of Low Ceilings in Small Houses, xi, 790.
Honeymoon, The Wax and the Wane of, xxviii, 230.
Honolulu, Cholera in, xxxv, 351; Observations in, C. E. Davis, xliv, 220; and the Plague, xliv, 216.
Honolulu Schools, xxxii, 571.
Honors, iv, 375.
Hopkins, H. R., Artificial Immunity, xxxii, 302; Hygienic Camps, xlii, 217.
Horlbeck, H. B., Management of Epidemics in Charleston, xiii, 484; Etiology of Yellow Fever, xliii, 512.
Horneman, E., Prevention of Syphilis, viii, 407.
Horseback Exercise and Malaria, J. W. Pinkham, x, 610.
Horseback Ride, An Artificial, xxxiii, 38.
Horsch, C. H., Necessity of Burial Permits and Infection of Dead Bodies, xix, 417; Necessity of Inspection of Animals Required for Food, 430.
Horseflesh, How to Recognize, Brautegam, xxxiii, 168; xxxix, 353.
Horseflesh Market, xlii, 246.
Horse Meat, Canned, with American Labels, xxxvii, 228.
Horse Meat, Consumption of, in Frankfort, xlvii, 518.
Horse Meat in Norway, xliii, 71.
Horses, Army, Fatigue in, xlvii, 455.
Horses, English, Sad End of, xxxvii, 228.
Horses, Scarlet Fever of, John C. Peters, xi, 247, 269, 296, 344, 405, 660.
Horses and Stables in Brooklyn, Census of, xxxvi, 188.
Horton, A. H., Necessity of Legislation Against Quackery, xxvii, 499.
Horsford's Acid Phosphate, xi, 269; Crothers, xiii, 464; xli, 243.
Hospital, Emergency, at the Pan-American Exposition, xlvi, 434.
Hospital, For a New Floating, xlii, 158.
Hospital Camp, State, xlvii, 368.
Hospital Construction and Organization—The Johns Hopkins Hospital, iv, 181.
Hospital, National Temperance, xxxviii, 65.
Hospitals for Consumptives Not a Source of Danger, xliii, 540.
Hospitals for Contagious Diseases, R. J. Farquharson, xii, 93; in Liverpool, xiv, 60; in Brooklyn, xviii, 144.

Hospitals of New York City, F. E. Hyde, i, 337, 440; Thos. G. Wall, xxxix, 62.
Hospital Hygiene and Observations on Nursing, Chas. Langstaff, i, 430.
Hospital Practice, American, Dr. Seaman, xlvii, 425.
Hospitality, Cuban, Whitemarsh, xliv, 379.
Hot Air, Electric and Roman Baths, E. C. Angell, vi, 529; Disinfection by, xi, 59.
Hot Water Bottle, A New, xli, 556.
Hotel Bed Rooms, Challamel, xlv, 310.
Hotel Himterston, Netherwood, N. J., xxxvii, 472.
Hotel Poisoning, Disease on the Defensive, x, 561.
Hotel Poisoning, The Case of, xi, 189.
Hotels and Their Practical Management, by a Manageress, xi 277.
Hough, F. B., Tree Preservation, x, 469.
House Accommodation, Sir Andrew Noble, xxxvii, 489.
House Construction, Sanitary Aspects of, W. Wallace, xi, 758.
House Drainage in Chicago, ix, 302.
House Drainage, J. W. Hughes, xli, 506; Obstructions, xlvi, 443
House Drainage and Sanitary Plumbing, Illustrated, W. P. Gerhard, x, 527.
House Drainage and Sewerage, Boobbyer, xlii, 26.
House, How to Heat a Village, H. B. Bashore, xl, 122.
House Inspection, Fleeming Jenkin, x, 156.
House, The "Little," M. M., xxvii, 118.
House Refuse, Disposal of, A. L. Carroll, xxiv, 257.
Houses, American Tenement, C. F. Wingate, xvii, 289.
Houses, Cheap and Artistic, xi, 126.
Houses, Country, Sources of Impurity in, H. B. Bashore, xlii, 495.
Houses, Uninhabitable, xi, 469.
Household Economics, Mrs. J. L. Hogan, xxxix, 481.
Household Water Supply, J. C. Chase, xxxiv, 399.
Housing Problem, The, xliii, 337.
Housing Reform in New York City, xxxviii, 92.
Housing the Working Classes, T. De Courcey Meade, xvii, 3; Improved Schemes Under the Housing Act, Addie, 19.
Housekeeping, Public, xlvii, 64.
Houston, A. C., Bacterial Treatment of Sewage, xlv, 316.
How Ostriches Digest, ix, 366.
How Complete Is the Protection of Vaccination and What Are the Dangers of Communicating Other Diseases with the Vaccine? A. N. Bell, x, 161.

How to Avoid Sewer-gas Poisoning, iii, 222.
How to Avoid Yellow Fever, Don Victor Perez, viii, 529.
How to Burn and How to Save Gas, W. R. Herring, 316.
How to Cure a Cold, i, 155.
How to Cure Dyspepsia, i, 211.
How to Determine the Hardness of Water, Krætzer, x, 29.
How to Discontinue a Journal, xiii, 190.
"How Dreadful Is This Place," iv, 541.
How Eggs Are Preserved by a New Process, v, 463.
How to Heat a Village House, H. B. Bashore, xl, 122.
How to Keep Cool of Hot Nights, v, 381.
How to Live One Hundred Years, Watkins, xxxix, 232.
How People Sleep, xli, 64.
How Printing Affects Health, ix, 579.
How to Render Wood Fireproof, P. Folbarry, x, 85.
How Shall Our Houses be Warmed and Ventilated? xiii, 267.
How Smallpox Is Spread by Emigration, x, 174.
How to Make Good Mucilage, iii, 78.
How Not to be Sunstruck, iv, 377.
How to Preserve and Restore Flowers, v, 257.
How to Purify Drinking Water, i, 235.
How to Swindle the Public, xxxiv, 554.
How Venice Is Supplied with Fresh Water, Geo. E. Waring, Jr., viii, 215.
How to Ventilate Schoolhouses, R. C. Kedzie, i, 517.
How a Woman Orders a Chest, v, 308.
Howard, C. C., Tests for Impurities in Water, xvi, 436.
Howard, L. O., Insect Friends and Enemies, xlvi, 398.
Howard, C. T., Artesian Wells, xvi, 222.
Howard, J. L., Spontaneous Combustion of Coal, xl, 310.
Howe, M., Home Sanitation in England, xlv, 314.
Howell, J. T., The Doctor as a Carrier of Disease, xliii, 151.
Howells, A., Sewage Disposal in Small Towns, xxxv, 215.
Howells, W. D., Gratitude, xliv, 352.
Hoyt, H. F., xiii, 563.
Hoyt, W. E., House Drains and Health, xxi, 34.
Huchard, M., Signs of Heart Failure in Fevers, xxxiii, 263.
Hudor-Lithia Water, xxxv, 266.
Hudson River Hospital for the Insane, i, 381; ii, 11.
Hueppe, F., Sanatoria for the Treatment of Tuberculosis, xliii, 204.
Hughes, C. H., Hygiene of the Nervous System, xv, 414.

Hughes, J. W., Fallacies of Vent-Pipe System, xxxvi, 336; House Drainage, xli, 506.
Hughes, M. Clovis, Hypnotism Extraordinary, xxii, 545.
Hughes, O. J. D., New Method of Preserving Meat, xlii, 42.
Hull, A. G., Mission of the Science of Medical Jurisprudence, xx, 97.
Human Progress, xiv, 508.
Human Race, End of the, D. G. Brinton, xl, 94.
Humanitarian Invention Association, xi, 379.
Humidity, Atmospheric, G. V. Poore, xv, 145.
Humility, i, 367.
Humorous Physiology, School Board Examination, viii, 496.
Humphreys, N. H., Light Without Heat, xxii, 326.
Hundred Year Club, The, xlii, 565.
Hundred Years, The Art of Living a, Hoffman, xlvii, 237.
Hungarian Public Health Association, xxii, 469.
Hungarian Wines, ix, 144.
Hunger and Mental Activity, xlvii, 188.
Hunt, E. M., Building Ground, ii, 411, 481; Home Contagia, ix, 550; Art and Science of Sanitation, xii, 285; Progress of Sanitation as Measured by Vital Statistics, 436; Sanitary Nomenclature, xvi, 142; Origin of Some Diseases, and Prevention of Microphytic Diseases by Individual Prophylaxis, xix, 418; Biographical Sketch of, with Portrait, xxxiii, 241.
Hunter's Point Stenches, ix, 181; xi, 526, 620.
Hurty, J. N., Formaldehyde as a Milk Preservative, xxxix, 317; Car Sanitation, xlv, 485.
Hutchins, I. J., Insomnia, xlii, 67.
Hutchinson, W., Health Insurance, xviii, 3.
Hutt, Village Boards of Health, xx, 419.
Huxley, Prof., Competitive Examination, vii, 223.
Hyacinths in Winter, iii, 364.
Hyatt, U. S. Consul, Porto Rico and Cuba, xli, 216.
Hydro-Therapeutics and Aerotherapeutics in the Prevention and Treatment of Tuberculosis, S. A. Knopf, xxxix, 24.
Hydrozone for Disorder of the Genito-urinary Tract, Aulde, xxxix, 488; in the Treatment of Intestinal Disorders, Vail, xlv, 451.
Hyde, Belcher, Papine as a Sedative, xxxiv, 517.
Hyde, F. E., Hospitals of the City of New York, i, 337, 440.
Hydra, The, L. Brandeis, xii, 358.
Hydraulic Engineering, xviii, 519.

Hydrogen, Dioxide, L. D. Kastenbine, xxxiii, 375; in Surgery, Tissot, xliii, 531.
Hydrogen Peroxide, Disinfecting Advantages of, xxvi, 253; Therapeutic Value of, Ribaux, xlvi, 432; Use of, in Empyema, xxix, 253; in Contagious Diseases, xxxi, 58; as a Water Purifier, 548; Wolffenstein, xxxv, 146; Safety Bottle for, xlvii, 53.
Hydriodic Acid, Syrup of, xxiii, 278.
Hydrogen, Sulphuretted, Poisoning by, Brouardel, xvii, 212.
Hydroleine, xvii, 384, 572.
Hydronephrosis and Renal Atrophy, Robert T. Edes, xxiii, 181.
Hydrophobia, ii, 217.
Hydrophobia, A New Departure in, H. L. Bartlett, ii, 317.
Hydrophobia Prevention—Pasteur's Latest, T. P. Corbally, xvi, 77; Deaths from, After Treatment by Pasteur, xxi, 285; in Paris, xxix, 154; Pasteur Treatment of, xxxviii, 150; xlii, 245.
Hygiene and Its Accessories, Abram Jacobi, xxxviii, 97.
Hygiene, Traill Green, xxi, 133.
Hygiene of Air and Water, C. W. Chancellor, xxxvi, 388.
Hygiene in America, H. I. Bowditch, vi, 135.
Hygiene at Amherst College, Prof. Hitchcock, v, 547.
Hygiene, Army, Edwin Chadwick, xi, 566.
Hygiene of the Army, John S. Billings, iii, 2, 115.
Hygiene of Ascaris Infection, J. Dewitz, xxviii, 441.
Hygiene and Movement of the Population in Buenos Ayres, T. P. Corbally, xv, 406.
Hygiene of Canadian Railways, xxxvii, 517.
Hygiene, Climatology and Demography, A. L. Gihon, xxxi, 372.
Hygiene, Clothing in Relation to, J. F. Hibberd, xxiv, 139.
Hygiene and Consumption, Dr. Holland, vi, 399.
Hygiene, Department of, at the University of Pennsylvania, xxiv, 171.
Hygiene, Department of, at Paris Exposition, xlv, 349.
Hygiene of Dwellings, Ch. A. Cameron, ii, 75; Geo. N. Bell, xvi, 151.
Hygiene of the Ear, O. D. Pomeroy, xii, 159.
Hygiene in Elementary Education, S. Gauthier, xxxiv, 201.
Hygiene Exposition at Warsaw, xxxvi, 190.
Hygiene of the Feet, xii, 177; Benj. Lee, 493.
Hygiene of Emigrant Ships, ix, 325.
Hygiene of High Houses, S. O. Vanderpoel, xii, 161.

Hygiene, Industrial, G. M. Kober, xlvii, 111.
Hygiene, Marine, xii, 468; Protection from Scurvy, T. J. Turner, 393.
Hygiene in Medical Education, J. I. Derroches, xxxiv, 428.
Hygiene, Municipal, Graduates in, xl, 353.
Hygiene, Naval, viii, 119; ix, 193; xi, 571.
Hygiene, Naval and Marine, Richard McSherry, ix, 371.
Hygiene, Naval Museum of, x, 192, 623; xii, 38; xiv, 56; xvii, 481; xxxviii, 116.
Hygiene in Porto Rico, Triumph of, xxxix, 373; Consul Hyatt, xli, 216.
Hygiene, the Rising Star, xxii, 263.
Hygiene and Sanitary Science, The Progress of, in the Nineteenth Century, Geo. M. Kober, xlvii, 97.
Hygiene and Ship Ventilation, A. Fr. Eklund, xi, 230.
Hygiene, School, C. J. Lundy, xii, 44; D. F. Lincoln, xxxii, 7; Monjaras, xxxiv, 200, Gauthier, 201; Herrick, xxxv, 103.
Hygiene, School-Books on, S. E. Chaillé, xi, 417.
Hygiene, Schoolroom, W. A. Moury, xxxvii, 142.
Hygiene, School in Paris, xxi, 253; in Rome, 466.
Hygiene in the Schools of France, xli, 457.
Hygiene, Scientific, Professional Course of Instruction, xxvi, 184.
Hygiene in Modern Egypt, J. A. S. Grant, xix, 197.
Hygiene in Geology and Agriculture, A. B. Tadlock, vi, 289.
Hygiene, National and International, Joseph Jones, xix, 193.
Hygiene of Nature, R. J. Curtiss, xvii, 3.
Hygiene and Physiology in Schools, S. E. Chaillé, xvi, 65.
Hygiene, Public and International, U. R. Milner, xix, 207.
Hygiene, Public, Progress of, J. R. Ycaza, xxvii, 511.
Hygiene, Real and Ideal, H. J. Herrick, xviii, 193.
Hygiene of the Public Institutions of the State of New York, E. V. Stoddard, xviii, 131.
Hygiene, Relation of the State Board of Health to the Laboratory of, Benj. Lee, xxviii, 310.
Hygiene, Public and Preventive Medicine, Recent Progress in, S. W. Abbott, xxxii, 486; xxxv, 45; xliv, 336.
Hygiene, Report of Committee on, Medical Society of State of New York, xviii, 131; xxxii, 193, 212; xlii, 227; xlvi, 231.
Hygiene, Teaching of, in Schools, W. C. Cook, xix, 221.
Hygiene, Teaching of and Degrees of Doctor of, in Public Health, Johnson, xlv, 506.
Hygiene of Cholera, A. L. Gihon, xxix, 304.

Hygiene and Demography, International Medical Congress, London, xxvii, 531.
Hygiene of the Habitations of the Poor, S. A. Robinson, xiii, 343.
Hygiene, Higher Medical Education, xxvii, 125.
Hygiene of the Kidneys, Simes, xxxiv, 241.
Hygiene of the Individual as Related to the Nation, W. R. Bartlett, vi, 241.
Hygiene, Military, in France, T. P. Corbally, xxix, 319; Duiroga, xlv, 332; Special School for, xlvi, 342.
Hygiene of the Nervous System, C. H. Hughes, xv, 414.
Hygiene, Ocular, in the Schools, Edward Jackson, xxxv, 492.
Hygiene, Professor of, at Harvard, xlii, 249.
Hygiene, Puberal, in Relation to Pedagogy and Sociology, Antonio Marro, xlv, 407.
Hygiene of Rice Culture, N. Lomas, xxvii, 511.
Hygiene of the Sick-Room, F. C. Larinore, xx, 220.
Hygiene of the Teeth, Clement B. Low, xli, 33.
Hygiene of the Stable, H. B. Bashore, xl, 404.
Hygiene for Tourists in France, xl, 285.
Hygiene of the Trolley, H. B. Bashore, xlvii, 504.
Hygiene, International Congress of, xiii, 71.
Hygiene in Germany, Status of, xxvi, 368.
Hygiene in Spain, xxii, 150.
Hygiene and Therapeutics, J. R. Black, vi, 498.
Hygiene, Value of, to Women, xxvii, 456.
Hygiene and Water Service of Paris, xxxii, 73.
Hygiene of the Young, T. C. Cameron, xxxiv, 32.
Hygienic Self-Defense, xxxviii, 195.
Hygienic Therapeutics, Dujardin-Beaumetz, xx, 317.
Hygienic Comparison Between the Lights of Electricity and Coal-gas, B. H. Thwaite, xi, 361.
Hygienic Instruction, Fitz and Shaw, xli, 213.
Hygienic Laboratory, University of Pennsylvania, xxvi, 264; Opening Address, S. Weir-Mitchell, xxviii, 289; Objects, Plans and Needs of, John S. Billings, 294.
Hygienic Museum in Berlin, xviii, 380.
Hygienic Precepts and How an Epidemic Was Stamped Out, xxxvii, 193.
Hygienic Settlement in the Cumberland Mountains, xi, 608.
Hygienic Waterproofing, xi, 587.
Hygienics of the Skin, L. D. Judd, xliii, 25.
Hypnotic, Sulphonal as a Reliable, xxxii, 463; Trional as a, 367; for Children, xxxix, 356.

Hypnotism, M. Hughes, xxii, 545; Evils of, xxv, 88; in Tabes Dorsalis, Spalikowski, xxxix, 154; a New Word for an Old Fact, Hamm, 286; What It Really Is, Wilson, xl, 566.
Hypodermic Injection of Morphia, vii, 527.
Hypophosphites, Fellows' Syrup of, xxxvii, 529.
Hysteria, xxix, 535.
Hysteria and Paludism, M. Lemorne, xxxvii, 250.
Ice, About, xlvi, 539.
Ice, Dangers of Impure, Pumpelly, Hills, Storer, x, 225, 286; xxii, 502; Pruden, xxix, 203; Microbes in, xxxii, 471.
Ice Cream, London, xxxvii, 70.
Ice Habit, The, in England, xlv, 330.
Iceland, xxxvii, 243.
Icthyol in Diseases of the Eye, xxxviii, 450; in Sciatica, xliii, 532; in Leprosy, xlvii, 555.
Ide, C. E., Pathology of a Health Resort, xl, 231.
Ideal Physician, xxii, 541.
Identity, Doubtful, xi, 147.
Idiots, Special Memories in, xxxviii, 95.
Idleness, xix, 544; xxxiv, 77.
Ignorance, When, Is Bliss, xliii, 454.
Illegitimate Children, xvi, 283.
Illinois State Board of Health, vii, 330; Workings of, Johnson, xi, 625; Restriction of, xxxv, 191.
Illuminating Oils, Scientific Standard for the Safety of, Beckweth, xviii, 247.
Illiteracy, xx, 71.
I'm Only a Fly, ii, 155.
Immigration, Statistics of, x, 27, 41, 239, 316, 396, 477, 681, 716, 796; xxxii, 546; xxxiv, 50; Irish, xi, 427, Paupers, 317; Insane, xiii, 71; *Vital* Statistics of, xiii, 83, 179, 264, 371, 467, 560; ditto, xiv, xv, xvi, xvii, xviii, Annual Report of, 376; Undesirable, How to Keep Out, xxv, 504; and Crime, xxxvii, 565; Tuberculosis a Bar to, xlvii, 63.
Immigrants, Arriving, Inspection of, Reilly, xxx, 462; by National Board of Health, xi, 26; The Number of, xxii, 359; xxvii, 379; Disinfection of Baggage of, xxi, 379; Not Yet Ready to Exclude, xxxvii, 90; Landed in New York, Why Most, xl, 190.
Immigrants, Sickness Among, xliii, 73.
Immigrant Passenger Vessels, Medical and Sanitary Service of, Bell, *et al.*, xix, 526.

Immigration, Cholera, Quarantine and, Chancellor, xxx, 97.
Immigration and Its Dangers, Wm. M. Smith, xxiv, 525; Supervision, xxxi, 274, Suspension Recommended, 375.
Immunity and Immunization, Buckner, xxiii, 133; Roux, Klein *et al.*, xxvii, 449, Ruffer, 542; Artificial, xxxii, 302; Nature of, xxxiii, 485; Immunity from Vaccination, xxxv, 144; The Immunity Conferred by Attack of Infectious Disease, Maiselis, xxxv, 68; Beclere, xxvi, 157; Natural and Acquired, French, xxxvii, 43; xlvi, 540.
Impaludism and Quinine, Theille, xliii, 363.
Imperfect Drainage, iv, 274.
Imperial Granum, Analysis of, iii, 46; xv, 568; xl, 45.
Importance of Sanitary Science, C. R. Agnew, i, 3.
Importance of a State Board of Health, v, 183.
Important to Examiners for Life Insurance, iv, 333.
Imposition on Life Insurance, i, 186.
Improved Garbage Boxes, v, 44.
Impure Milk, iii, 142.
Impure Water, i, 516; B. D. Siliman, iii, 231; Microscope, iv, 473; vii, 476; Smart, xxii, 489.
In the Park (Poem), Chandler, xii, 127.
In Washington's Day, xxxvi, 185.
Inaugural Address, F. H. Hamilton, iv, 37, 563.
Incarceration *versus* Whipping, xlvi, 94.
Inconsistencies, Sanitary, Some, xxx, 400.
Increase of English-speaking People, xxxvii, 558.
Increase of Weight While Fasting, Bouchard, xli, 549.
India, Bacteriology in, xxxv, 293.
India, Chesney and Brassey, xxxiii, 282.
India, Christian Converts in, xlvii, 287.
India, Sanitary Condition of, Grant Bey, xxii, 396.
India's Winter Climate, xxxv, 563.
India's Plague Horrors, xliii, 539.
Indian Treatment of Quacks, iii, 134.
Indians, How, Are Named, xxxviii, 381.
Indian Children, Home Duties of, Fletcher, xxxix, 94.
"Individual Cups," Communion, xxxiii, 527.
Individual Work, as Related to Health Boards, W. R. Bartlett, viii, 247.
India-rubber Trees, xxi, 40.
Indiana State Board of Health, xxxvi, 540.
Industrial Education, vii, 346; xi, 731.

Inebriates, Statistics of, xxxv, 386.
Inebriety, xi, 293; Contagiousness of, xiii, 564; and Its Treatment, Crothers, xix, 248; Pliny Cure for, xxxi, 430; Restriction in Norway, xxxiv, 496; Among Railroad Men, xxxv, 387; Heredity in, Morton, xxxv, 391; Treatment of, in Germany, xlii, 156; Maternal Influence of, on Offspring, xliv, 350.
Inebriates' Home for New York City, Proposed, xlvi, 442.

INFANTS, THE CARE OF.—The Sixteen Commandments of the Paris Academy of Medicine.

Ten Commandments of Holy Writ:

I. During the *first year* the only suitable nourishment for an infant is its own mother's milk, or that of a healthy wet nurse. Suckling should be repeated every *two* hours—*less* frequently at night.

II. When it is impossible to give breast milk, either from the mother or a suitable nurse, cow's or goat's milk, given tepid, reduced at first one-half by the addition of water slightly sweetened —and after a few weeks one-fourth only, is the next best substitute.

III. In giving milk to an infant always use glass or earthenware vessels, not metallic ones, and always observe the most scrupulous cleanliness in their management, rinsing whenever used. Always avoid the use of teats of cloth or sponge so frequently employed to appease hunger or quiet crying.

IV. Avoid carefully all those nostrums and compounds so liberally advertised as superior to natural food.

V. Never forget that artificial nourishment, whether by *nursing bottle or spoon* (without the breast), increases, to an alarming degree, the chances of producing sickness and death.

VI. It is always dangerous to give an infant, especially during the first two months of its life, solid food of any kind—such as bread, cakes, meats, vegetables or fruit.

VII. Only after the *seventh* month, and when the mother's milk is not sufficient to nourish the child, should broths be allowed. After the first year is ended, then it is appropriate to give light broths of paps, made with milk and bread, dried flour, rice and the farinaceous articles, to prepare for weaning. A child ought not to be weaned until it has cut its first twelve or thirteen *teeth,* and then only when it is in perfect health.

VIII. A child should be washed and dressed every morning, before being nursed or fed. In bathing a child, temper the water to

the weather, carefully cleanse the body, and especially the genital organs, which require great cleanliness and care; and the head should be carefully freed from all scabs and crusts which may form. Where the belly band is used, it should be kept up at least one month.

IX. An infant's clothing should always be so arranged as to leave the limbs freedom of motion, and not to compress any part of the body.

X. An infant's clothing should be studiously adapted to the weather, avoiding at all times exposure to the injurious effects of sudden changes in the temperature without proper covering; but nurseries and sleeping apartments should invariably be well ventilated.

XI. An infant should not be taken into the open air before the fifteenth day after birth, and then only in mild, fair weather.

XII. It is objectionable to have an infant sleep in the same bed, either with its mother or nurse.

XIII. No mother should be in too great a hurry to have a child walk; let it crawl and accustom itself to rising on its feet by climbing on articles of furniture, or assisted by the arms of a careful attendant. Great care should be taken in the too early use of baby-wagons, etc.

XIV. No trifling ailments in infants, such as colics, frequent vomiting, diarrhœa, coughs, etc., should be neglected; a physician's advice should be at once obtained.

XV. In cases of suspected pregnancy, either of mother or nurse, the child should be weaned at once.

XVI. A child ought to be vaccinated after the fifth month, or earlier, should smallpox be prevalent. xi, 328.

Infant Feeding, xiv, 81; Leeds, xi, 321; xix, 239; Symposium on, Smith, *et al.*, xxi, 111; Report on, xxi, 106; The Problem of, Atkinson, xxi, 100; Nursing with Asses' Milk, xxii, 323; Foods, xxviii, 571.

Infantile Diarrhœa, Buck, xv, 393; xxxiii, 269.

Infant Diet, E. N. Chapman, iii, 305, 351, 391; J. S. Hawley, iv, 63, J. H. H. Burge, 268; Hen's Eggs in, Cotton, xliv, 414.

Infant's Life, An, The Cash Value of, xlv, 398.

Infant Mortality, Corbally, xii, 75; High in Germany, xxv, 84; Causes and Prevention of, McDonald, xxvii, 498; Prevention of, Wende, xli, 496; Jacobi, xlvi, 31.

THE SANITARIAN.

NOVEMBER, 1902.

NUMBER 396.

IMMUNITY, NATURAL AND ARTIFICIAL.*

BY VICTOR C. VAUGHAN, M. D.,
Dean of the Department of Medicine, University of Michigan.

It is a matter of observation as old as the history of man that all animals are not alike affected by the same diseases, and that epidemics which decimate certain species are wholly without effect upon the health or life of others. Primitive man undoubtedly recognized the fact that one attack of certain diseases gives a more or less permanent immunity to the disorder. It has also been long known that some diseases, such as diphtheria and scarlet fever, which are so highly fatal among children, rarely attack adults. The question of immunity has long been, is, and probably will long continue to be one of the most perplexing problems which medical science has attempted to solve. With so many chances of infection the question may be asked, How it it that the human race continues its existence, and why has it not been swept out of the world by epidemics? The answer to that is not easy, and the time has not come when it can be given with perfect satisfaction, but we are now in possession of numerous facts bearing upon this point, and I will attempt to briefly state the most important of these.

In the outset it should be plainly understood that the factors involved in securing immunity against the infectious diseases are multiple in number and varied in character. A mistake has been made in endeavoring to explain immunity as being due to one or even to a few antibacterial properties of the animal body. Some of the factors which lead to immunity in the infectious diseases pertain to the animal organisms, while others are due to limitations of capability of growth on the part of the infecting agents.

*Oration at the meeting of the Indiana State Medical Society at Evansville, May 22, 1902.

For instance, but few if any of the pathogenic bacteria are able to penetrate the unbroken skin, and infection through this avenue occurs only when there is some break in the continuity of the covering of the body. Indeed, some of the most powerful pathogenic micro-organisms are practically harmless when introduced into the body subcutaneously, while they may speedily cause death when taken into the alimentary canal. This is true of the vibrio of Asiatic cholera. On the other hand, the bacilli of tetanus and anthrax may do no harm when taken into a healthy stomach, while they are likely to cause speedy death when injected subcutaneously. These examples render it evident that it is not sufficient for a pathogenic micro-organism, even one to which man is highly susceptible, to come in contact with the human body in order to cause disease, but it must first find its suitable port of entry, and even after this has been reached there are other dangers to the life of the invader with which it may have to meet before it reaches the place where it can entrench itself and begin the struggle. Such guards are furnished by the mechanical movements of ciliated epithelial cells, by the tortuosity of certain passages, by coming in contact with such fluids as the gastric juice, or by being hurried through the body and passed out in the excretions, as undoubtedly often happens to typhoid bacilli when taken into the alimentary canal. Moreover, every toxicogenic germ is not capable of maintaining even for a short time a parasitic existence. The obligate saprophytes, which are numerous, and some of which undoubtedly produce powerful toxins, are capable of harming man only under exceptional conditions which are specially favorable to their growth and multiplication. Indeed, many members of this class do not appear to be capable of growth and reproduction when introduced into any part of the animal body, and consequently they are harmful to man only when their already formed toxins are introduced into his body. These bacteria in and of themselves are not able to influence the health or endanger the life of man. Other powerful toxicogenic bacteria have their intracellular poisons locked up in cell walls which, under ordinary conditions, are impermeable, and it is only when some unusual condition gives opportunity for the disintegration of the bacterial cell that its toxin is liberated and becomes capable of doing harm. This seems to be true of the colon bacillus, which normally has its habitat in the intestines of man, and which contains a powerful intracellular poison. Under ordinary conditions this bacillus does not become harmful to man because its toxin

does not diffuse from the bacterial cell and consequently cannot be absorbed by the intestinal wall, but if the colon bacillus finds its way into the peritoneal cavity where its cell wall is broken down by phagocytic or other action, its toxin is liberated, to the great danger of the host.

Animals differ widely not only in their susceptibility to bacterial infection, but also to bacterial intoxication. For instance, certain animals, especially birds and reptiles, are not susceptible to the toxin of tetanus, and mice and rats bear large doses of the diphtheria toxin without ill effect. On the other hand, many animals which are susceptible to the toxins cannot be infected by the bacteria which elaborate these toxins. It will be seen from this that there are both bacterial and toxin immunity.

For the purpose of convenience we will discuss the subject of immunity under the following heads: (1) Natural immunity, or that possessed by certain species or races of animals at all times against certain diseases; (2) Inherited immunity, or that which is transmitted from the mother to the fœtus through the placental circulation, or from the mother of the child through the milk; (3) Acquired immunity, or that which is brought about by one attack of the disease, by vaccination, or by repeated treatments with sterilized or unsterilized cultures of the specific micro-organism. Acquired immunity may be either active or passive. By an active immunity we understand that form which is induced by the direct treatment of the animal with filtered or unfiltered cultures, and in which case the antitoxic or antibacterial substance is produced in the body of the animal thus treated. Passive immunity, on the other hand, may be secured by injecting the blood serum of an animal actively immunized into a second animal. We may illustrate the difference between active and passive immunity by the method which is used in the preparation of diphtheria antitoxin. The horse is treated with successive, non-fatal, gradually increased doses of diphtheria toxin until this animal furnishes a blood serum containing a large amount of diphtheria serum containing a large amount of diphtheria antitoxin. The horse's serum, when injected into a child sick with diphtheria, supplies the antitoxin which neutralizes the toxin and thus protects the tissues of the child against the injury that would otherwise be inflicted on its cellular elements by the noxious agent. In this illustration an active immunity is induced in the horse, and as a result of the establishment of this condition, certain cells within the animal are stimulated to a form of activity by which the anti-

toxin is generated. In other words, the horse treated with successive doses of the diphtheria toxin comes to possess an active immunity. The horse's serum, containing the antitoxin, is injected into the child, which, for the time being, becomes physiologically a part of the horse, and possesses only a passive immunity.

I wish to say a few words in detail concerning the subject of natural immunity and the lessons which we may draw from this condition. It is a fact of common observation as well as of experimental demonstration that the lower animals are wholly immune to certain bacterial infections to which man is markedly susceptible. For instance, among men typhoid fever is one of the grave diseases causing a great morbidity and increasing to a marked extent the mortality lists, while among the lower animals this disease does not occur naturally nor has any one as yet been able to induce it by inoculation with the bacillus. It is true that there is a disease among horses known as horse typhoid fever, but it is due to a wholly different germ from that which causes the disease in man. A true infection with Eberth's bacillus has not been established in any of the lower animals, although many have been used for experimental purposes. Leprosy, scarlet fever, yellow fever, measles are other diseases which inflict themselves upon mankind, but to which the lower animals are apparently insusceptible. Some infections are prevalent among certain species of animals, while upon others they seem to be without effect. As an illustration of this we may state that anthrax, while common among sheep and cattle, is incapable of affecting most of the carnivorous animals. It is an interesting fact that in nature some animals, such as the guinea pig and rabbit, are not known to suffer from epidemics of anthrax, while this disease can be easily induced in these animals by artificial inoculation. One of the most important factors in natural immunity is that the toxicogenic germ is unable to multiply in the animal body. The bacillus pyocyaneus is often found upon the surface of man's body, especially in the axillary and inguinal regions, and sometimes it occurs in the intestines, but notwithstanding this almost constant proximity of this organism, man is but rarely injured by it, yet nevertheless this bacillus produces a toxin to which man is susceptible. The micrococcus prodigiosus is not classed among the pathogenic bacteria, and yet experimentation has shown that its toxin, which has been used in the treatment of malignant growths, has a marked effect upon man. It is more than probable that most of the

saprophytic bacteria contain intracellular substances which, when injected into animals in relatively large amounts, are capable of causing death. The sarcines are usually regarded as altogether harmless, but recent experiments in my own laboratory have shown that the intraperitoneal injection of the cellular elements of both the lemon and orange sarcine causes death in guinea-pigs and rabbits. It has been found that large amounts of the spores of the tetanus bacillus, when completely freed from the toxin, may be injected into rabbits and guinea pigs with no further injury than the formation of a pocket of pus at the place of injection, but these animals are highly susceptible to tetanus toxin, which causes in them the typical symptoms of the disease, and induces speedy death. The natural immunity possessed by some animals to tetanus infection may be overcome by the employment of mixed cultures, even when the accompanying micro-organism is apparently altogether without effect. A like result may be secured by the subcutaneous injection into the animal body of certain chemicals, such as lactic acid. On the other hand, certain animals are quite insusceptible to the toxin, and at the same time easily infected with the micro-organism. The healthy man is relatively insusceptible to tuberculin, but is easily invaded by the tubercle bacillus, and after becoming infected with the germ he loses his susceptibility to the toxin. It will be seen from these illustrations, and numerous others might be given, that inability on the part of the micro-organism to grow in the animal body is an important factor in natural immunity, but this is by no means the sole factor in the establishment of this condition.

It was at one time believed that the alexins, or bactericidal substances in the blood, played a large part in the establishment of natural immunity, but more extended investigation has shown that this supposition is erroneous. The blood serum of the rabbit has relatively strong bactericidal effect upon anthrax bacilli, and yet this animal is highly susceptible to this infection. The discovery of the germicidal action of rat's blood on anthrax bacilli was at one time suggested by Behring as an explanation of the relative immunity possessed by this animal to anthrax infection, but more extended observation has shown that the white rat is more susceptible to anthrax than was at one time supposed, and yet the bactericidal action of rat's blood on the anthrax bacillus can be demonstrated not only outside the animal body, but also within the organism. If anthrax bacilli be mixed with rat's blood and the mixture be injected into mice, the latter animals escape in-

fection, but the rat from which the bactericidal blood was obtained succumbs to infection with the bacillus. On the other hand, the adult dog is immune to anthrax infection, while the blood serum of this animal has no germicidal action on this organism; and indeed anthrax bacilli grow abundantly in the blood serum of the dog. It will thus be seen that the blood of the rabbit, an animal highly susceptible to anthrax infection, has marked germicidal action on anthrax bacilli outside the body, while the blood of the dog, an animal immune to anthrax infection, furnishes a good culture medium for the growth of the bacillus. We must therefore conclude that the attempt to explain natural immunity solely or even largely by the bactericidal properties of the blood must be abandoned. However, I do not claim that the alexins can be wholly disregarded in the study of this problem.

Metschnikoff, by a series of most thorough and brilliant experiments, has been led to believe that the most important factor in the production of natural immunity is to be found in the phagocytic action of certain cells within the animal body. According to this authority, phagocytes consist of both mobile and fixed elements. Among the former he places the mono and polynuclear leucocytes and the so-called wandering cells, while the fixed phagocytes, or macrophags, consist of endothelial cells, the elements of spleen pulp and bone marrow, some connective tissue cells, and possibly certain nerve and muscle cells. When bacteria are introduced into a naturally immune animal they are seized upon and devoured by either the mobile or fixed phagocytes or both. When the micro-organism is introduced into a place where there are no phagocytes, as, for instance, under the skin, into the cornea, or into the anterior chamber of the eye, the mobile phagocytes collect at the point of bacterial invasion, engulf the bacterial cells with the aid of their pseudopodia, and then digest them or in some other way deprive them of their capability of harming the body. Even those who have produced the best arguments against Metschnikoff's doctrine of phagocytosis admit that this phenomenon is especially observable in animals which are relatively immune to the invading micro-organism, or in other words, they recognize the fact that in natural immunity phagocytosis is at least a frequently observed phenomenon. As has been stated, the dog is insusceptible to anthrax infection, and it has been found that when anthrax bacilli are injected under the skin of this animal a very energetic phagocytosis takes place. Even spores are taken up by the phagocytes and sometimes they develop into bacilli within the

phagocyte, thus destroying the organism which has engulfed them; but ordinarily their development is rendered impossible and their destruction finally accomplished. The phenomenon of phagocytosis can be explained only on the assumption that the phagocyte contains some chemical substance by virtue of which it destroys the captured micro-organism. What this chemical compound is, or whether it is the same in all phagocytes or not, we cannot at present determine. All phagocytes contain nucleic acid, and the germicidal properties of this have been abundantly demonstrated, but whether or not there may be other and more powerful bacteriological agents in certain phagocytes we have no means at present of knowing. It is still a question whether or not the germicidal substance contained in the leucocytes is a secretion of these organisms or a disintegration product. It is possible that a blood which furnishes a highly bactericidal serum on the disintegration of its leucocytes outside of the body, gives off but little or no germicidal substance to the plasma in the living body. It is probable that the leucocytes in the blood of certain animals disintegrate more rapidly when removed from the body than happens to the leucocytes of other animals. In instances of the first kind we would expect to find a blood serum possessed of marked germicidal properties, while in cases of the second kind the serum might be quite devoid of bactericidal action. Again, it is possible that the phagocytes in the blood of one animal may retain their germicidal constituents longer than the phagocytes in the blood of other animals do. In the serum of a blood of the first kind we would not expect to find a large amount of germicidal substance, and yet within the body the phagocytes of this animal may be very effective in the destruction of germs; more than are those in the blood of an animal whose serum is rich in germicidal substances.

That bacteria may retain their vitality after being taken into the phagocyte has been demonstrated by injecting phagocytes containing bacilli into susceptible animals and thus inducing infection. When phagocytes containing bacteria are removed from the body the phagocytes die, and some of the contained bacteria demonstrate their retention of life by growth and multiplication. It sometimes happens within the body that the bacterium proves too powerful an opponent and the phagocyte is destroyed. This condition can be brought about by the employment of a highly virulent culture or by placing the animal after inoculation under unfavorable conditions. For instance, Pasteur and Jubert demonstrated that while the chicken is naturally immune to anthrax,

susceptibility may be secured by keeping the inoculated animal at a low temperature under the unfavorable influence of which normal phagocytic action is not possible.

There is another chemical process in the phenomenon of phagocytosis which is of the greatest importance. The phagocytes are attracted by the introduction into the body of certain substances and repelled by others. This is known as chemotaxis, which may be either positive or negative. In other words, a foreign substance introduced into the animal body may attract phagocytes or it may repel them. In the former instance the phagocytes will gather in large numbers about the foreign substance introduced into the body, and phagocytic action will be most marked. It appears to me that the greatest factor in natural immunity, so far as the action of the blood of the body on the invading organism is concerned, lies in the fact that in natural immunity chemotaxis is positive, and the more marked the natural immunity is, the stronger is the chemotaxis. It should be understood that in making this statement I have reference only to natural immunity against infection and that I do not include in this statement my opinion in regard to natural immunity against toxins.

It is undoubtedly true that plasmolysis is an important factor in natural immunity. It is a well-known fact that the removal of bacteria from one medium into another containing slightly more or less of certain mineral constituents may be followed by the death of all or the greater part of the micro-organisms. Bacteria consist of cell walls with contents. Diffusion through the cell wall is constantly taking place to a greater or less extent. By altering the mineral constituents of the medium, an osmosis which may prove fatal to the bacterium will result. The removal of the bacterial cell from an isotonic medium to one which is either hypotonic or hypertonic leads to greater or less injury to the cell.

To sum up this part of my subject I may state that in my opinion the most important factors in natural immunity to bacterial infection are the following:

(1) Inability on the part of the micro-organism to multiply in the animal body.

(2) The destructive action of the phagocytes on the invading micro-organism.

(3) Plasmolysis, or the destruction of the invading cell on account of the composition of the new medium in which it finds itself placed.

NATURAL IMMUNITY—EHRLICH'S THEORY.

The subject of natural immunity to toxins is one of quite as much interest as that which we have been discussing. Instances of insusceptibility to powerful poisons have long been known, and have formed the subject matter of much theoretical discussion. For instance, hogs can eat large amounts of arsenic and antimony with impunity, and certain insects not only live but apparently thrive in an atmosphere saturated with the vapor of formaldehyde. It is well known that certain vertebrates are highly resistant to the most potent venom of snakes. This is notably true of the mongoose and hedgehog. Many birds, including the barnyard fowl, are insusceptible to the tetanus toxin. A generally accepted explanation of natural immunity to toxins is that offered by Ehrlich's theory. This author holds that in order for a substance to be toxic to the animal organism the latter must contain cells, the molecules of which furnish side chains capable of forming chemical compounds with the toxin. When the toxin is not capable of forming a chemical combination with some constituent of the cell it has no poisonous action on that animal. Some bacterial toxins, such as that of tetanus, form a destructive combination with the cells of the central nervous system, while others probably form similar compounds with other tissues of the body. According to Ehrlich, natural immunity to toxins is due to the failure to form combinations in the animal body which are destructive to some of its cellular elements.

The study of acquired immunity has furnished the bacteriologist a rich field for research. Early in his development man must have observed that one attack of certain diseases gave to those who recovered more or less permanent immunity to that disease. The Chinese recognized this fact many centuries ago, so far as smallpox is concerned, and this led to their practice of inoculation for this disease. This custom probably spread from the Orient through Tartar tribes; and, as is well known, was introduced into England from Turkey. The next step made in the study of acquired immunity was the discovery of vaccination for smallpox by Edward Jenner, but inasmuch as up to that time the specific bacteria remained unknown, the philosophy of vaccination could not be investigated. The scientific study of acquired immunity may be said to date from the early investigations of Pasteur, who in 1880 discovered that inoculations with non-virulent cultures of

chicken cholera gave immunity to subsequent inoculations with a virulent culture of this micro-organism. Indeed, as early as 1877 Pasteur observed that susceptible animals inoculated with cultures of the anthrax bacillus mixed with other bacteria did not acquire the disease. This discovery, as we shall see later, has been employed by others. It may be well to proceed in the discussion of acquired immunity by considering the different agents employed in securing this condition. These are as follows: (1) By treatment with attenuated cultures of the germ of the disease. (2) By the employment of sterilized cultures of the specific micro-organism, or by the use of toxins. (3) By treating the animal with cultures of the specific micro-organism mixed with the other bacteria; or by the employment of mixed cultures, in which the specific micro-organism is present.

Pasteur found in some of his earlier experiments that when the bacillus of chicken cholera is grown on artificial culture media through successive generations it gradually loses its virulence and finally reaches a point where it is no longer capable of inducing the disease in susceptible animals. Then he found that animals treated with these non-virulent cultures and subsequently inoculated with virulent cultures remained uninfected. With the anthrax bacillus it was found that there is no loss of virulence in successive growths on artificial media. It was therefore necessary to resort to some other means of robbing this organism of its virulence. Pasteur found that this could be accomplished in several ways, the most important of which were: (1) Growth at relatively high temperatures, and (2) Growth in culture media containing small amounts of certain antiseptics, such as carbolic acid. By both of these methods he was able to secure vaccines which were found to give temporary immunity, notably for anthrax, but the immunity secured in this way is in most instances, at least, of relatively short duration, and this method cannot be said to be altogether successful. It is true that herds of cattle and sheep may be protected from a prevailing epidemic in this way, but revaccination must be frequently practiced, and there is always danger unless great care is exercised of not sufficiently reducing the virulence of the germ, and epidemics have even been extended by the employment of imperfectly prepared vaccines.

Attempts to secure immunity by the employment of sterilized cultures were probably suggested by the discovery of the fact that immunity to the venom of snakes may be obtained by frequent successive injections of non-fatal doses. As early as 1886 Sewall

immunized pigeons to the venom of the rattlesnake, and soon thereafter Salmon and Smith immunized animals to the bacillus of hog-cholera by successive treatments with sterilized cultures of the bacillus of this disease. The later and more complete researches of Ehrlich with abrin and ricin gave great impetus to study along these lines, and time cannot be given to even an enumeration of all the work that has been done in the study of immunity by treatment with sterilized cultures. A certain degree of immunity to some of the infectious diseases may be secured by previous treatment of the animal with substances of non-bacterial origin. The first hint that this might be accomplished was offered by Wooldridge, who reported that he had secured immunity against anthrax by previous treatment of the animals with extracts of testicles and thymus glands. Although subsequent investigations have not fully confirmed this statement, they have led to the discovery of many interesting facts. It has been found that at least temporary immunity against infection may be secured by previous treatment of the animal with normal blood serum, nucleinic acid, bouillon, or even physiological salt solution. In accordance with the phagocytic doctrine of Metschnikoff, it is supposed that these substances of non-bacterial origin give temporary immunity on account of the phagocytosis which they induce. Temporary immunity against some of the most virulent bacteria may be secured in this manner. Some years ago I immunized rabbits to a most virulent culture of the diplococcus of pneumonia by previous subcutaneous injections of yeast nucleinic acid. This form of securing immunity is more easily demonstrated by peritoneal inoculation than in any other way. It is possible that the injection of the preventive substance leads to more or less phagolysis and as a result of this the peritoneal fluid becomes unusually rich in bactericidal substances, which results from the disintegration of the phagocytes. Metschnikoff suggests that the phagolysis caused by the introduction of the preventive solution is the active agent in causing the accumulation of the phagocytes at the place where the phagolysis has occurred. For instance, if beef tea is introduced into the peritoneal cavity of a guinea-pig, phagocytes collect in this locality and undergo disintegration whereby the fluid content of the peritoneal cavity becomes rich in dissolved bactericidal substances. Subsequently when the bacteria are injected into the peritoneal cavity many of them are destroyed by the soluble germicidal substances, and those that escape this action are seized upon by the incoming phagocytes. If a drop of the peritoneal

fluid be examined at this time it will be observed that some of the bacteria have met with extracellular death, while others are engulfed in the phagocytes.

When the animals are immunized by successive treatments with a micro-organism or its products, the blood serum or other fluids obtained from the body acquire either bactericidal or antitoxic properties. In some instances the immunity secured is wholly antibacterial, while in others it is antitoxic. It will thus be seen that in the production of artificial immunity we may expect to find marked differences, depending upon the micro-organism used and the kind of animal immunized. The bactericidal properties possessed by the fluids of the body of the immunized animal can manifest themselves only by an inhibitory action on the growth of the germ or by partially depriving it of its capability of liberating toxins. Early in his investigations on this subject Metschnikoff found that the anthrax bacilli grown on the blood serum of sheep immunized to this disease are without effect upon rabbits, but are still possessed of enough vitality to induce fatal anthrax in mice. This indicates that there is something in the blood serum of the immunized sheep which reduces the virulence of the anthrax bacillus. In some instances the inhibitory action of the immune serum manifests itself by depriving the bacterium of its ability to produce certain of its characteristic products. Thus, Charrin and Rogers found that when the bacillus pyocyaneus is grown in the blood serum of animals immunized to this micro-organism it no longer produces its characteristic coloring matter. The inhibitory action of the body fluids may not be permanent, and when the bacillus is removed from their direct influence it may recover all of its ordinary virulence. Bordet found that when streptococci grown in the serum of immunized horses were completely freed from this medium they are as virulent as those developed in the blood serum of an unvaccinated horse, and Rogers observed that the same organisms grow well in the serum of immunized rabbits, but when thus grown and injected into other animals along with some of the immune serum, they induce only a temporary local disturbance. Next he inoculated rabbits with normal streptococci placed in the blood serum of immunized animals and found that the rabbits treated with this mixture remained well, while those in which the streptococci and the serum were injected on different parts of the body succumbed to the infection.

The phenomenon of agglutination is a manifestation of the inhibitory action of the sera of immunized animals on their homo-

logous bacteria. The fact that there may be immunity without agglutination, and vice versa, is no proof that this phenomenon is not a result of the inhibitory action in those cases in which it does occur. It should be understood that agglutination is only one of various indications that the body juices of immunized animals rob their homologous bacteria in part of their virulence. Why agglutination does not take place in all instances we are not as yet able to determine, but when it does occur it is an indication that the blood of the immunized animal has some effect upon the growth and virulence of the micro-organism. It is true, as Metschnikoff has pointed out, that agglutination is not always observed and that there are immunized animals which furnish sera in which the homologous bacteria grow quite normally, but this observation does not overthrow the fact that the agglutination is an evidence of the detrimental effect of the sera of immunized animals on the bacteria to which such animals have been immunized.

The bacteriolytic effect is the most marked form of bactericidal action that has been observed in the body juices of artificially immunized animals. When the blood serum completely dissolves its homologous bacterium it so completely destroys it that it no longer has infectious or toxic properties. It has been shown quite positively that agglutinins and lysins are not identical, but the probabilities are that they represent the products of different stages reached in the process of immunization. A given blood serum may have an agglutinating action and be without bacteriolytic effect, or vice versa, but it must be admitted that the possession of either one of these properties by the body juices militates against the growth of the infective agent and consequently each must be considered as a factor in the production of artificial immunity.

The question of the origin of the anti-infectious substances in the production of artificial immunity is one concerning which at present we do but little more than theorize. The weight of evidence seems to be in favor of the view that by successive injections of the micro-organism or its products the leucocytes are stimulated to increased secretion of germicidal substances. Metschnikoff claims that it is a general rule that phagocytosis is more pronounced in immunized animals than in those not immunized. He states that when a micro-organism is injected into an animal which has been immunized to this germ, the phagocytes of the animal take up the invader more promptly than is done when

susceptible animals are inoculated with the same germ. That phagocytosis is more marked in immunized animals is shown by introducing the micro-organism in localities ordinarily free from phagocytes, such as the subcutaneous tissue and the anterior chamber of the eye. When this experiment is made the phagocytes collect at the point of inoculation very much as they do in an animal possessed of natural immunity, and there they devour the invading micro-organism. The probabilities certainly are that the bactericidal substances found in the serum of immunized animals originate in the phagocytes, whose capability of secreting these substances is heightened by the process of immunization. Undoubtedly it is true that phagolysis also plays a part in increasing the anti-infectious properties of the body juices of immunized animals.

I will now turn to the subject of immunity to bacterial toxins. According to Ehrlich, we are to consider that certain cells of the animal body consist of a nucleus which he designates as a special executive center from which there radiate many side chains. It must be understood that this is a chemical and not a morphological conception of the cell. These side chains physiologically are concerned in the process of nutrition. Nutritive substances brought to the cells by blood or lymph can be utilized in its nutrition only after they have entered into combination with one or more of the side chains. It is conceivable that some of these side chains combine with carbohydrates, others seize upon proteids, and still others may fasten themselves to molecules of fat. In this way all serve in securing nutritive material for the growth, repair or reproduction of the cell. It is also possible that certain pharmacological agents act upon the different tissues of the body by virtue of combinations effected by these cellular side chains. Now in order for any substance to be poisonous to a given animal, there must be in the body of that animal cells with side chains capable of combining with the substance. A body which is unable to effect a combination with any animal tissue cannot be poisonous. It is not supposed that any cells possess side chains especially provided for the purpose of combining with poisons, but it is possible that certain atomic groups which ordinarily are concerned in securing nutritive material for the cell may combine with substances which are capable of bringing about cellular destruction. On account of the close chemical resemblance between the bacterial toxins and certain food principles, notably those proteid in character, this supposition seems quite plausible. In the first place,

then, we may say that the body cells must possess toxophile side chains. By this we mean that in the molecular construction of certain constituents of the cell there are groups of atoms which may combine with bacterial toxins. Both the toxophile groups of the cell and the cytophile groups of the toxin may be designated as haptophorous bodies. This means that it is by virtue of these groups that the toxin enters into combination with certain molecules within the cell. However, the toxin is possessed not only of a haptophorous, but also of a toxophorous group, and it is by virtue of the latter that injury to the cell may be accomplished. The ordinary nutritive substances must, according to this theory, possess cytophile haptophorous side chains, but they do not contain toxophorous elements. Now when a small amount of bacterial toxin is introduced into the body of a susceptible animal by virtue of its haptophorous group it combines with some cell in the body. Whether it causes a destruction of that cell depends upon the immediate injury done by this combination. If the toxin be introduced in sufficiently large quantity it may completely destroy the cell, and if a sufficient number of cells be destroyed, death will result. If, on the other hand, the amount of toxin introduced be relatively small and the number of toxophile groups in the cell used up in the combination be also small, the cell soon recovers from the slight injury done by it, but recovers deprived of the side chain which has combined with the toxin. Feeling this loss, and needing this side chain in order to supply itself with nutritive material, the cell throws out a new side chain, and when stimulated by frequent introduction of small quantities of toxin it finally not only makes good the loss with which it has met, but also throws out more side chains than it can possibly use. In other words, the over-stimulated cell secretes, as it were, toxophile groups, and, as frequently happens in case of tissue stimulation, the process continues to a point of over-compensation. Finally the excess of toxophile groups thrown out by the cell becomes so great that many of them are cast off into the blood, lymph and other fluids of the body. These cast-off toxophile groups constitute the antitoxin. Now if a toxin be introduced into the body of an animal whose blood and lymph are filled with loose toxophile groups, the toxin is neutralized by these detached side chains and the cell escapes injury altogether. In this way Ehrlich accounts for the formation of antitoxins and the production of toxin immunity. If the blood serum of an immunized animal be injected into a non-immune animal and the latter be treated with the homo-

logous toxin, the poison thus introduced combines with the antitoxin dissolved in the body juices, and the cells of the animal thus treated wholly escape any injurious effect.

It will be seen from what has already been given that according to Ehrlich's theory, antitoxins are not modified toxins, but are the products of certain cells of the animal body, and are produced by the stimulation of these cells by the toxin. If it can be shown that antitoxins have their origin in the toxin molecule, Ehrlich's theory will be overthrown. The evidence against the theory that antitoxins are modified toxins is well nigh conclusive, and may be stated as follows: The taking of large quantities of blood, one-third or more of the contents of the body, from immunized animals at intervals of time sufficiently long to allow the animal to recover to such an extent that its life is not seriously impaired does not diminish the immunity of this animal as markedly as would be expected if the antitoxin was a modified toxin, and the quantity of the former could not be greater than the quantity of the latter employed in immunizing the animal. Again, if an immunized animal be bled to death and its vascular system be washed with physiological salt solution until all the blood that can possibly be washed out is removed, it will be found still that infusions of certain tissues of this animal contain antitoxin. It must, however, be granted that the tissues may retain some of the modified toxin in the form of antitoxin after the most thorough washing-out of the vascular system. Still another indication that antitoxin is not modified toxin is found in the fact that the quantity of antitoxin obtained is not always, at least, in direct proportion to the amount of toxin used in the production of the immunity, as would necessarily be the case if the antitoxin originated in the toxin. Certainly it must be admitted that if the antitoxin comes from the toxin the amount of the former produced could never be greater than the amount of the latter used in its production; or in other words, a part can never be greater than the whole.

The brilliant results which have been obtained in the treatment of diphtheria by the use of its specific antitoxin have led to a wide range of experimentation with the hope of securing similar results in the treatment of other diseases, but so far no great success has attended these efforts. However, we must not be discouraged, because, up to the present time, no bacterial toxin has been obtained in a condition which even approximates chemical purity. Undoubtedly work along this line will be pushed, and valuable contributions may be expected in the near future. Whether or

not we will ever secure an anti-bacterial serum of value remains for future investigations to determine. Encouraged by the past, and hopeful for the future, scientific medical men will continue in their untiring search for means necessary to prevent and to cure disease.—"Indiana Medical Journal," June, 1902.

A FU FAX AND FIGGERS.

Here is a tangle for you to straighten out. The man who wrote the article may not know how to spell, but he does know what tobacco does for folks. I wish every one of my boys would write this out, spelling all the words correctly, and "do the sum" to see if the answer $1,338.54 is correct. CAPTAIN MARY.

I hav of lait got at sum stubbun fax and figgers. 2 siggars a day, costing only a nikkle eech, for 20 years at 1st Site appeers to Bee a smol matter. Let us figger the cost. 10 sents daly for 365 daze reeches the sum ov $36.50. We will not rekkon interrist the first yeer, but the interrist on $36.50 for 19 yeers at 6 purr sent is $73.92, and the Totle ov prinsipple and interrist at 6 Purr sent, kompounded yeerly, at the end ov 20 yeers maiks the neet little Sum ov $1,338.54. That izzn't a great deel but it wood Bi 200 barrils ov good flower, and in Sum sekshuns ov the kuntry wood maik wun the oaner ov a good farm, with houce, barn, wel, sisstern, froot treeze and wood-lot on it, possibly a jurzy cow and sum Uther niknax throne into the bargin. But my expeeryunce has tot me that fax and figgers prodoose but a Slite impresshun on wun who has fully dessided to maik bacon ov his Branes bi turning his mouth into a smoak-houce. He communly prefurs the hi and eggvalid privvylige ov bloin smoak thru his noze to having enny uther erthly pozeshun.—"National Advocate.

THE REQUIREMENTS OF SANITATION.*

By H. M. Bracken, M. D.,
Secretary of the State Board of Health, St. Paul.

We often hear the sentiment expressed that "the function of the physician primarily is to cure people." Rather let us assume that to prevent disease is even better than to "cure people."

Preventive medicine is constantly receiving increased attention. It is not the medical education of medical men that will bring about the greatest advancement in preventive medicine, but rather the education of medical men alone the lines of *dealing with well recognized facts as to the control of preventable diseases* that will produce the greatest good.

Too often it is the case that the physician who is acting as health officer in a village or city is handicapped in the performance of his duties by the ignorant opposition of the laity and the commercial opposition of certain of his brother practitioners. The former should be overcome by the united effort of the medical profession to educate the people as to the actual needs in connection with isolation, disinfection, and quarantine. This can best be accomplished through local sanitary organizations which should be made up of the prominent people (including women) in every village and city. Such organizations may be under the name of civic league, improvement association, or such other title as a given place may choose. Of course, physicians, physicians' wives, and school teachers should be active members of such an organization.

If the people understand the cause of the various communicable diseases, the manner in which these causes are transmitted from one person to another, and the means to be used to prevent such transmission, the work of the medical profession will be made easy and there will be no occasion for continued opposition to the health officer in the performance of his duties by those unprincipled physicians who try to make professional capital through sid-

*Read at the eleventh annual meeting of the Southern Minnesota Medical Association at Owatonna, Aug. 7, 1902.

ing with the quarantined individuals in their opposition to sanitary requirements.

In addition to educating the laity in villages and cities along sanitary lines, thus aiding in the elimination of preventable diseases from such places, it is necessary to extend the sanitary educational work to the country districts. Here a somewhat different plan will have to be followed so far as the laity is concerned, for the people are scattered. Still further, the sanitary demands are more easily fulfilled in the country districts, for, with a scattered population, the danger of spreading infectious diseases is much less than that existing in villages and cities. For example, if diphtheria should appear in a family in the country the disease should be easily limited to the one family, *provided it is recognized early*, for there need be no direct communication between those who are hosts of the diphtheria bacillus and the people who are germ-free in the surrounding country. Such isolation of *all hosts* of the diphtheria bacillus in a village or city is sometimes secured only with great watchfulness.

Sanitation in the country districts can be greatly aided through the township officials, who should have a thorough understanding of matters pertaining to infectious diseases, and there should be a close association of such officials with intelligent county and State sanitary officials. As yet the intelligent county sanitary official can hardly be said to have an existence in this State. A bill passed by the Legislature of 1901 provided for a county health officer, but made little provision for him to exercise intelligent authority.

There is practically nothing in the way of a sanitary advisor between the State Board of Health and the township officials. It too often happens, therefore, that when sanitary problems present themselves in country districts no effort is made to dispose of them until the conditions demanding attention become widespread and alarming.

Every county should have an intelligent medical health officer. Such officers should be men of ability, with a good standing in their profession. They should be able to command the respect of the community in which they live. They should receive reasonable compensation for their services. They should be worthy of their hire, looking at the matter both from the sanitary and the commercial point of view, for through their efforts lives are saved, and at the same time expenses should be reduced to a minimum both for individuals and for the county. As a money investment

a county health officer, if he is a man of intelligence and at the same time conscientious and thoroughly honest in his dealings, should be an important element in every county in this State.

With such organizations as now exist and should exist, as outlined in the preceding portion of this paper, the sanitary machinery should be in perfect working order; in country districts the township and the county health officers should work together; in villages and cities the sanitary organizations and the health officers should work together; while all of these organizations should join hands with the State Board of Health in order to secure the best results throughout the entire State.

To bring about this latter proposition nothing can be of more value than the Minnesota State Sanitary Association that was organized last January. This should have among its members every health officer throughout the State, as also a strong representation from the laity and the various professions.

This Sanitary Conference passed a resolution requesting the President for this year to urge local authorities to send health officers to this Association, paying their expenses while in attendance.

To place the sanitary machinery, outlined above, in thorough working order it will be necessary to secure a revision of our present sanitary laws. Here it is that a quotation taken from the "Philadelphia Medical Journal" of recent date, is apropos: "Preventive medicine and hygiene often need the aid of doctors in politics." I hope all assembled here to-day will use their influence with their respective Representatives and Senators to secure the passage of such sanitary laws next winter as will make this a model State as bearing upon these questions.

In summing up, these propositions are before us:

1. In dealing with sanitary problems the physician should be a leader.

2. In villages and cities there should be sanitary organizations having in their membership lay representatives as well as physicians.

3. In country districts the sanitary problems should be under the strict supervision of a county health officer acting in conjunction with the various township health officials and the State Board of Health.

4. The county health officer should be a physician of good standing among his fellow practitioners, and should receive a reasonable compensation for services rendered.

5. The Minnesota State Sanitary Association should have full representation from the various county, city, and village organizations.—From "The St. Paul Medical Journal," October, 1902.

SANATORIA FOR CONSUMPTIVES.*

A meeting of the combined sections of sanitary science and of engineering and architecture was held September 26th, with Sir James Crichton Browne in the chair, for the discussion of the subject of "Sanatoria," of which several important papers treated, and respecting which oral addresses were delivered by Dr. Cooper Pattin, from the municipal, Dr. Moritz from a chemical, and by Dr. F. Milson Rhodes from a general point of view. Dr. Scurfield (Sunderland) also presented a number of suggestions for the employment of consumptives after successful treatment in sanatoria. There was a very large attendance of members, which included Dr. Nocard (Academie de Medecine, Paris), one of the delegates of the French Government, and many other medical men.

Dr. MILSOM RHODES (Didsbury, Manchester) said the advocates of sanatoria should be able to show a good reason for the faith that was in them and prove to the ratepayers that they were not mere fads for spending money. The slum was the breeding ground for the *tubercle bacillus*. There were two districts in Manchester in which there happened to be the same number of deaths—469 in each—in a given period. In one there was a population of 135,000 and in the other 244,000. That proved that it was the overcrowded slum that was responsible for the high death rate. The provision of sanatoria would effect a saving to the nation. He was an advocate for the multiplication of sanatoria, but what he would most like to see was that every man's house should become a sanatorium itself.

Mr. EDWIN T. HALL, F. R. I. B. A., Council of the Sanitary Institute, subsequently read his paper on

*Sanitary Congress at Manchester, Eng., Sept. 26, 1902.—From the "Surveyor and Municipal Engineer," Oct. 3, 1902.

SANATORIA FOR CONSUMPTIVES.

This dealt chiefly with the principles to be followed in their construction. Three most important factors had to be considered: (1) Site, which included questions of subsoil, altitude, shelter, prospect and aspect; (2) water supply; and (3) sewage disposal. Stiff clay soils and low-lying sites, even on sand or gravel, should be avoided. The ideal site was the southern slope of a hill, sheltered from the north and east winds by trees. The best types of sanatorium abroad and at home had elevated positions. Wide clearings, particularly on the south side, should let in plenty of sunlight. Proximity to high road should be avoided, on account of dust. The source of water supply should, if possible, be a spring on the higher side of the sanatorium.

With regard to the question of sewage disposal, the author said as a good site for a sanatorium would generally be far from public sewers, some method of disposal must be considered. It was a common practice in South Germany to mix sewage with sulphur earth. At Falkenstein the mixture was contained in a closed vessel placed in the outlet chamber of a divided sewage tank. The inlet chamber received the sewage, from which, by a screen or tray, it was separated. This chamber emptied itself at a certain level by syphonage. To the top of the syphon a small pipe from the mixture vessel was attached, and as the sewage passed it drew a charge of the mixture by suction. The effluent was then conveyed from the second chamber to another receiving tank at a distance, divided into two chambers, and ultimately to four settling tanks, used in rotation, and after resting there for a period ranging from two to four weeks the liquid was discharged on to the land. There was no smell whatever, and the extreme simplicity of the installation was commendable. The septic tank treatment was used in South Germany and at Wokingham, in Surrey, where the effluent passed on to the land.

The size and construction of the sanatorium were next considered. The design should suggest inexpensiveness, limitation of height of buildings, separation of administrative buildings from the hospital proper, and the avoidance of all angles, ledges and crevices where dust could harbor. The question of separate bedrooms or of rooms for two or three beds must be settled before pencil could be put to paper, and whether to provide for reclining balconies, *liegehallen*, as the Germans called them. At Falken-

stein there was a sanatorium for 120 patients, seventy rooms had single beds and twenty-five had two beds, the frontage extending 1,000 feet in a nearly straight line, with a central block facing east-southeast, and two wings at an obtuse angle enclosing on three sides a terraced garden. The sanatorium for poorer patients at Ruppertshain would accommodate ninety male and thirty-two female patients. It had eighteen rooms for single beds, seventeen for four beds, and six for six beds.

The arrangements in other Continental types were described, and then the paper turned to some modern English institutions—Crookesbury Ridges, directed by Dr. J. R. Walters; Pinewood (Wokingham), and the new sanatorium at Frimley (Surrey) now being erected for the Brompton Consumption Hospital from the author's designs. The latter was for non-paying patients, of whom 100 will be accommodated. The bed-rooms, of which forty-eight were for single, eight for two, and twelve for three beds (the maximum), faced either south, south-southeast or south-southwest. The sanatorium proper, or patients' block, consists of a central building three stories high, all built of brick, the upper story tile hung on the brick, the roof being also tile-covered. All wings are practically detached, and in a pine country this tends to limit the risks of fire and consequent danger to patients. In the new Camberwell Infirmary, for 800 patients, the author had arranged with the Board of Guardians special provision to be made in three wards, each of twenty-four beds, for tuberculosis patients. The whole length of the walls on three sides were made to open so as practically to form *liegenhallen*, where the patients may be said to lie in the open air. Above were flat roofs, easy of access, where some patients could actually remain in the open air all day long. "As far as I am aware," concluded the author, "this is the first Poor Law institution in the kingdom where this has been done, and we hope it may be the means of bringing open-air treatment to the poor at their own doors in a practical way."

In a paper by Mr. W. Cecil Hardisty, architect (Manchester), which followed, the author said that, although the altitude of sites so often found in Continental sanatoria were seldom available in this country, altitude was not everything, provided that the principal requirements—dryness and shelter—were complied with.

Out of twelve sanatoria in England only three had a greater altitude than 400 feet above sea-level, yet good results were recorded at all of them. Single bedrooms should be the rule, though

a small number of four or six-bed wards might be allowed. The balcony was more airy than the veranda; but a better plan was the provision of small shelters in the grounds, at a reasonable distance from the building. This would compel a little walking exercise, and it would induce the patients to indulge more fully in the open-air treatment. The furniture should be plain and not upholstered, and there should be no tapestry curtains and no pile carpets. In the bedrooms there should be no superfluous furniture—the less, the better in fact. The keynote of a sanatorium must be brightness, cheerfulness and homeliness.

Dr. GLOVER LYON (London Hospital for Chest Diseases), speaking on the question of the construction of sanatoria, said he thought they should not be aggregations of architectural structures, but simply clusters of shelters. If they adopted the right line the sanatorium would be sheltered from the most prevalent winds and would get as much sun as possible. The rarest winds in this country were those from the southeast and the northwest. If the sanatorium had a southern aspect the inmates would lose the beautiful evening sun, which was so delightful at certain times in our climate.

Dr. NIVEN (medical officer of health, Manchester) said he thought that too much importance was attached to the question of the housing of the people, which was loaded with difficulties and would not be solved for a great number of years. If they could not fight it successfully they must seek out other expedients. It might be that removal of the population to the outside of the large towns might afford a remedy. He regarded the movement outwards as one full of promise for the future of our race. It would be an immense counterpoise to the poorer classes crowding into the towns. It was objected that rents would rise; but why should the municipalities build houses, and so check the tendency which would be upwards if left to private enterprise?

Before the sitting closed the combined sections passed unanimously the following resolution, on the motion of Dr. James Armstrong, seconded by Dr. J. F. J. Sykes:—

"That this congress request the Sanitary Institute to prepare and issue in a condensed form a summary of the present knowledge on the treatment of tuberculosis as obtained at the recent international congress and elsewhere, and that the committee of the King's sanatoria be invited to join in the publication."

HOW TUBERCULOSIS IS COMMUNICATED.

All tuberculosis affections are due to the introduction into the body of the tubercle bacilli or its spores. Phthisis is always due to the development in the lung of tubercles and the lesions (inflammatory, etc.) which are associated with, and which result from such development and growth of tuberculous lesions. Phthisis may be either a primary or a secondary tuberculous lesion. So far as is known the tubercle bacillus is never generated *de novo* but is always derived from some previous case of tubercle. The tubercle bacillus is given from the bodies of human beings affected with tubercle, either in the sputum, in the fæces, in the urine, or in the discharges from tuberculous lesions (diseased bones, joints, skin ulcerations, etc.). The expired air from a case of phthisis does not contain the tubercle bacillus. In cases of phthisis the tubercle bacillus is chiefly given off in the sputum. As long as the sputum remains moist the surrounding atmosphere is not impregnated with the tubercle bacilli; but when the sputum dries and becomes pulverized, the germs readily pass into the air, so that the dust derived from the dried sputum of cases of phthisis is the chief means by which the tubercle bacillus is conveyed from persons affected with phthisis to other healthy human beings. Susceptible persons who inhabit the rooms and houses in which dust impregnated with the tubercle bacillus is allowed to remain and accumulate, run some risk of being infected. Tuberculous disease in the human subject may also be due to the introduction into the body of tubercle bacillus or its spores derived from the lower animals; in other words, tuberculous disease in the human subject may be due to the introduction into the gastro-intestinal tract of tuberculous milk or tuberculous meat.

Tuberculous milk is a frequent cause of human tuberculosis. Butter made from such milk is also infective. The milk of a tuberculous cow only becomes tuberculous when the milk-producing apparatus (mammary glands, milk ducts, and udders) is itself infected with local tuberculous disease. Infection by such milk is a most important source of tuberculous disease of the mesenteric glands and therefore of generalized tuberculosis; it occurs chiefly in children.

Tuberculous meat is probably also an occasional, but by no means a frequent, cause of tubercle in the human subject. Primary tuberculous disease of the lungs is rarely due to infection by meat or milk. The channels through which the tubercle bacillus or its spores are introduced into the human subject are (1) with the inspired air; (2) with food or drink; or (3) by means of inoculation.

In man inoculation seems very rarely to produce internal tuberculosis. When tubercle is induced in this way it usually remains local.—From Lecture on "The Causation and Prevention of Phthisis," by Dr. Bramwell; "Lancet," July 5, 1902.

GIVE HIM AIR; HE'LL STRAIGHT BE WELL.

In view of the award to Dr. Arthur Latham of the first prize of £500 for his essay in regard to the proposed King Edward's Sanatorium for Tuberculosis some interest attaches to an address delivered a few months ago before the Hunterian Society of St. George's Hospital, London, Eng., by the successful competitor, on the Modern Treatment of Pulmonary Consumption. In it Dr. Latham throws well-deserved scorn upon the treatment which has been so often meted out to unfortunate sufferers from this disease, a treatment by-the-way which can even at the present be found in full swing in the out-patient departments of many a hospital, even of special consumption hospitals, where, if anywhere, one would expect to meet with better things. "It is not an uncommon experience," he says, "to find some unfortunate workman, who lives continuously in a fetid atmosphere and eats an indifferent amount of coarse and unnutritious food, taking all of the following medicines during the twenty-four hours: A mixture of cod-liver oil with malt, to supply, so it is said, the place of the fast-ebbing vital oil; a mixture of gentian and sodium bicarbonate, to assist the jaded appetite! an ether mixture to strengthen the action of the heart when the patient feels more than usually ill; some form of lozenge to allay the cough during the daytime, together with a new-fangled antiseptic as an inhalation; and some pernicious preparation of opium to bring sleep at night." It is one of our amiable weaknesses to hold patent medicines in ridicule and contempt, but what could be more ridiculous, considering the teachings of the dead-house, than the current treatment of consumption so aptly

described by Dr. Latham—a mere pouring in of drugs without any attempt to touch the root of the disease. Yet in the midst of all this drugging, going on far longer than we can remember, there have been men who saw the truth. So far back as 1840, George Bodington insisted on the importance of a generous diet and a constant supply of pure air, and propounded the terrible heresy that "cold is never too intense for a consumptive patient." In 1855 Dr. Henry MacCormac, the father of the late Sir William MacCormac, published a book on somewhat similar lines, and in 1861 read a paper before the Royal Medical and Chirurgical Society in which he advocated what are now established principles. Yet what was the treatment which these pioneers received at the hands of their professional colleagues? Bodington's book, says Latham, "met with much bitter and fierce opposition, and eventually the disapproval of his methods became so universal that patients were driven from his sanatorium," while "the members of the Royal Medical and Chirurgical Society refused to pass the usual vote of thanks to Dr. MacCormac, because they thought that the paper was written by a monomaniac."

The position taken up by the medical profession in regard to the treatment of consumption has indeed been most deplorable, and has thrown into strong light the bar sinister which hangs over the origin of medicine—a science, if it be a science, springing in the far past from mystery and witchcraft; tainted with the methods of the sorcerer, and even now dominated by that overmastering faith in drugs and nostrums which is the direct and disastrous heritage handed down to us by our immediate ancestors, the apothecaries. It has been an ignoble spectacle; no one taking a broad view; each man limited by his education and trudging along in the rut of his old habits—physicians pouring in drugs, surgeons scraping out bits of diseased tissue, while even now, in the full light of bacteriological science, we find men attempting to cure consumption by soaking the patient's tissues with antiseptics; and all this in defiance of the teachings of pathology, which go to show how frequently the disease gets well if the patient's vitality, the *vis medicatrix naturæ*, is but given a fair chance. Yet, how near we were to the truth if we would but have listened, if we would cut ourselves adrift from the prejudices ingrained in us by our education, and, in the words of one great man, have thrown "physic to the dogs," and in those of another, have investigated all things by "observation and experiment." Once a year we have met together to do honor to the immortal Harvey, and then

we have returned to this miserable drug-giving as if Harvey had never existed. Meanwhile, notwithstanding our ostracism of new ideas, the teachings of Bodington, of MacCormac, and of the modern host of sanatorium owners has prevailed; and now, at last, in the full sunshine of royal patronage, we admit how simple is the truth, expressed as it is by the motto of Dr. Latham's essay: "Give him air; he'll straight be well." What sycophants we all are! It is high time that, as a profession, we sang a litany, "From the thraldom of dogma and the limitations of the physic bottle, Good Lord deliver us."—"The Hospital."

THE UNITY AND INTERCOMMUNICABILITY OF HUMAN AND BOVINE TUBERCULOSIS.

Dr. M. P. Ravenel, of Philadelphia, gave ("Medical News" Abstract, Pennsylvania Medical Society Proceedings, September 27, 1902) a brief summary of experiments made to determine the truth of the above statement. These experiments have proven indisputably that this is true, and that Koch's postulates were wrong. The claim of the unity of the disease in man and animals is based on several points: (1) A study of cultures of each, old tubes of which cannot be differentiated from each other; (2) the changing of human tubercle bacilli into the bovine form by passing them through several series of animals, this change in form being true as regards cultural characteristics, morphology and pathogenicity for small animals; (3) the gross pathology of the lesions, and (4) their pathological histology. The intercommunicability of the human and bovine varieties was proven by transmission from man to animals by means of ingesta of sputum and also by inoculation. Of the latter Dr. Ravenel has four cases. The human bacillus from mesenteric glands, when introduced into cattle intraperitoneally or intravenously, caused their death in from 17 to 27 days. An interesting point brought out by experiments with animals, and also by human postmortems, is that the tubercle bacillus can pass through the intestinal tract of man and set up its characteristic changes in the tissues of the body without having left a trace of its entrance in this manner. Experiments with swine demonstrated that the tonsils may be the point of entrance for the bacilli. Dr. Ravenel closed by saying that the chief means of the transmission of tuberculosis is the sputum of affected persons, but that children should also be protected from infection by the destruction of all tuberculous cattle.

COSMOPOLITAN HEALTH STUDIES.*

By F. L. Oswald, M. D.

XIV.—ALGERIA.

The history of Algeria, during the last two hundred years, embodies the records of reforms, attempted by two contrasting civilizations. About the end of the seventeenth century Mohammedan rulers completed the conquest of the Atlas country due south of the region that once formed the domain of Carthage, and proceeded to enforce the theological and dietetic Puritanism of their creed.

Sixty years ago secularized France assumed control of the enterprise—the civilization of the wild highland tribes who had partly adopted the doctrines of the Koran. Her methods differed from those of her predecessors in all but their ultimate purpose.

"Achieve your salvation by prayer and abstinence," had been the injunction of the Arab Mullah.

"Work out your redemption by industry and science," was the advice of the French Commissioner.

Islam and its rival had almost exchanged their traditional roles. Almost; not altogether, an impartial student of Old World history is obliged to admit. In spite of her revolution, in spite of a hundred years' progress in science and in what Moncure Conway calls the "earthward pilgrimage," France has not yet quite reached the standpoint of secular rationalism which the Moors of Southern Spain attained five hundred years ago. Nor has the bigotry of the modern Mussulman ever approached the uncompromising, inhuman fanaticism of the mediæval monk. The Koran has evolved no Inquisition. The Crescent has not been clouded by the smoke of the stake.

But just now the devotee of the Prophet stands obstinately for reaction and supernaturalism; the exponent of French culture for progress and—"materialism" would hardly be too radical a term. The marvels of the New Zion are never mentioned in the stere-

*Continued from page 320.

opticon lectures by which the school-board of Algiers is trying to wean the natives from their traditions.

General Clausel summed up the contrast in the remark that the doctrine of the turbaned reformers dealt in "don'ts," that of their successors in " do's."

It may, however, have been justly charged that those successors are carrying their indifference to the "don'ts" a little too far. A French judge of the Prision Arabe would scout the idea of committing a prisoner on a charge of mere intoxication, of drunkenness not aggravated by outrageously disorderly conduct. In communities where alcoholic liquors were once classed with poisons, rum, wine and absinthe are now sold on the open street in broad daylight, and not all the natives have been able to resist the temptation. They would sooner be pilloried than let a Giaour enjoy the triumph of seeing them drunk in his gutter, but a good many of them have begun to buy forbidden drink by proxy and smuggle it to some hiding place in the house of a friend who can be relied upon to palliate the consequences. The fasts of the faith are no longer enforced, and among a large class of Unitarian city-dwellers have ceased to be observed. In the Rhamadan season, the Mohammedan Lent, it was formerly considered a scandal to see a man eat meat, or, indeed, touch any food before sundown; now Mohammedan officials, artisans and business men enter the restaurants of the harbor towns and quietly take a seat at a lunch counter, where viands all but exclude farinaceous preparations.

"Doesn't the Koran warn you against touching pork?" a bantering French merchant asked a neighbor who was helping himself to a large section of sausage. "Just so, friend," said the man with the fez, "that's just the reason I came in here where they are thoughtful enough to sell forbidden food in skins."

But the country dwellers kept aloof. The words "pagan" and "heathen" were derived from the conservatism of rustics (*pagani,* heath-folk) who held the fort in the rocks of Mount Olympus for centuries after their city neighbors had joined the procession to Golgotha. The Algerian highlanders have declined the blessings of French culture. Thousands of them have become Moorish-orthodox to a degree unknown to their ancestors—just by way of protest against the ethics of the detested invaders. And that antipathy not rarely assumes aggressive forms. Gangs of indignant Kabyles will leave their fastnesses after dark to destroy the vineyards of the European colonists. Pig-shooting and pig-

poisoning have become common practices. Moreover, these zealots now remember that their creed enjoins abstinence from the flesh of all rodents. Rabbits have multiplied. Native rabbit-trappers, wine-drinkers, and, indeed, all who betray symptoms of compromise with the habits of the Giaours risk to be mobbed. "Catch him, baptize him," yell the true believers, and the renegade can be glad to get off with a plunge in a horse pond.

A few years ago the mountain district of Jalep-Kebir was convulsed by evidences of the fact that a cannibal was abroad. The highlanders organized vigilance committees, and after a still hunt of several weeks their scouts caught the monster *in flagranti*, but contented themselves with kicking his shins when they found out that his victim had been only a French settler.

"I shot him dead from a distance of sixty rods," admitted the defendant, "and I thought you would glory in a deed helping to rid the land of these curs."

"Yes, but you have soiled that glory," growled the leader of the regulators; "don't you know that the Koran prohibits the eating of dogs?"

The Kabyles and Beni-Jebel are gaunt, strong-jawed savages, agile as mountain baboons, and about as innocent of combs and soap. Their "ablutions" are performed in an altogether perfunctory manner, often a mere raising of hands, as if for purposes of mesmeric charms, as Captain Bernault assures us, and, as a consequence, skin diseases prevail, and are counteracted chiefly by the horrid custom of anointing the patient an inch thick with stale mutton-tallow and then replacing his unlined wool coat. Wool and camel's hair almost supersede vegetable fibres in the camps of the pastoral nomads, but the doctrines of the Jaeger school have nothing to do with that fact; all who can afford the expense procure linen under-garments, and Abd-el-Kader, during his captivity in France, admired the thrift of the peasants who had saved the means of indulging in the luxury of wearing linen altogether.

A number of warm sulphur springs in the foothills of Mount Atlas enjoy a great popularity. Scores of health-seekers may be seen huddled together in a steaming pool, half buried in the malodorous ooze, some of them; men of quality bestriding a tripod, and for hours together mingling their tobacco smoke with the remedial fumes.

But whenever a French speculator undertakes to improve one of these spas, the natives transfer their patronage to a less accessible health resort. They will not touch fluids bottled, filtered or

immured by misbelievers, whom they think capable of about every rascality.

"Fling that cup of coffee out of the window," said Napoleon in a fit of petulance, after an interview with his jailer, "it would give me the colic to drink it, and remember that scoundrel standing alongside of it for half an hour."

But a mountain sheikh, invited to the mess-table of a French officer, would entertain such apprehensions in gloomy earnest, and a wounded guerrilla in a hospital of Oran made his escape the first night his nurse happened to fall asleep. They recaptured him some twenty miles out of town, and all things considered, decided to let him go, but incidentally ascertained that he had removed his plasters, carefully scraped and washed them, and then replaced them in the form of bandage strips.

The natives have *hakims,* or semi-professional doctors, but their ideas of hygiene are about on a par with those of a Sioux medicine man. Bleeding and purging are the Alpha and Omega of their methods, and they stick to strange traditions about the peculiarities of herbs that must be administered during special phases of the moon, after dark, but not after midnight, etc., etc., etc. Slips of paper, with quotations from the sanitary treatises of the Prophet, are worn as amulets, and sometimes swallowed in a cup of water.

Sunstroke victims have their heads shaved, and may be seen standing about turbanless, praying for the clouds on their brain to clear off.

Delirium is a frequent concomitant of fevers that prevail in the fens at the foot of the mountain chains.

"Vache-Etangs" (a corruption of "Guad-el-Sheytan"—"Devil's water"), the French colonists call these swamps, that are formed by the infiltration of obstructed mountain streams, and swarm with gnats, but continue to attract settlers by the rank fertility of their alluvium. The main range of the Atlas rises rather abruptly at a distance of some fifty miles from the coast, and scores of mountain brooks, coming down dancing and bubbling from the highlands, never reach the sea, their volume of water being insufficient to carry them across the sand-drifts of the intervening plain. Forest destruction has nipped their career in its prime, but in perishing they avenge their fate upon the destroyers by forming malarial jungles, as malignant as the Pontine swamps, at certain seasons of the year.

French engineering skill has drained a number of these fens,

by guiding their effluents into a ring-ditch, which, in its turn, supplies a network of irrigation canals, miles away from the gnat-infested jungle.

Thus isolated, the Vache-etang withers, and eventually dries up altogether, but, for the past few years, becomes more noxious than before: the ooze of former pools being exposed and evolving fever-germs in far-reaching swarms.

Something similar is often experienced on our Southern Gulf Coast, where fevers are ripe, not during rainy summers, but during the subsequent periods of dry weather that evaporates the palliating surface waters of the lagoons.

In one or two cases land speculators have solved the still more difficult problem of uniting the waters of several little brooks, and in that way enabled them to reclaim long-forsaken channels and protract their coastward journey by dozens of miles.

Artesian wells, too, have created oases in the heart of the sand wastes.

Roads have been improved, and new highways across the principal mountain passes have been surveyed and graded at a considerable expense.

The aborigines could not permanently resist such arguments in favor of secularism. They have rented land from real estate syndicates, or from the government direct, here and there, and resumed agriculture under guarantee of absolute toleration of all non-aggressive religious practices. Nay, immigrants from Morrocco have crossed the border and availed themselves of the chance to raise abundant crops in peace. *Their* ancestors, they explained, never had any quarrels with the Franks, and could accept them as neighbors, where the men of Argel were prevented by the pledge of war feuds.

Climatic diseases have thus been considerably abated, and the European colonists who had their pick of the best homesteads, have enjoyed good health to a more than expected degree. The climate, it is true, is not only warm, but hot, for five months of every year, but it is also very dry, corresponding very nearly to that of Cape Colony, where lymphatic, corpulent Hollanders were transformed into athletic Boers. A retired French army surgeon, who bought a ranch near Sidi Barrat, some fifty miles south of Constantine, but took his medicine chest along, reports that the list of prevalent maladies is almost limited to enteric disorders, which, in their turn, are due mostly to over-eating. The temptation to surfeits, he admits, is considerable. The orchards produce

enormous crops of figs, peaches, apricots, egg-plums, cherries, oranges and pears,—and *such* pears,—varieties that could be sold in Paris at a quarter-franc apiece, but can here be had at fifty centimes a bushel. Dates are brought in from the south plains, excellent honeycombs from the limestone hills of the coast range; hens flourish in the bush tangle of the ravines and lay the year round; there is no winter in the North American sense of the word, and no risk of famine, where settlers can be induced to work three days in the week.

Some twenty years ago Caucasian immigrants took their lives into their hands by pitching their tents in the uplands of the Atlas proper; now the northern slopes of the mountains are studded with cottages, and the settlers describe the climate as out and out superior to that of southern Switzerland, and, indeed, of any other part of *modern* Southern Europe. Greeks in the times of Xenophon may have enjoyed such series of bright, genial days and cool nights—not one hour of swelter weather, for months together, and rarely more than three or four hoar frosts in the year.

Cold springs abound in that Eden of the slandered continent. For the great mountain chain that ranges from the Atlantic eastward for more than a thousand miles has preserved its highland forests in all their primeval glory; Algeria alone boasts 1,200,000 hectares of timberlands. In some of the wooded glens south of Fort Maret squirrels and pheasants have reared their broods undisturbed for many thousands of generations, unconcerned about the wars and devastations that raged all around. Among all the countries known to the land-devouring Romans, the Atlas highlands alone have enjoyed perpetual peace, here alone the aspects of Nature have never changed during the millenniums of the present geological period.

The French conquest of Algeria may thus, after all, prove a blessing in disguise. It has half-reclaimed a land which once combined the prestige of a granary with that of an unrivaled hunting ground; French mountain howitzers have forced the gates to the most attractive natural sanitarium of the present world.

(To be continued.)

MEDICAL EXCERPT.

PTOMAINE POISONING.

Dr. Alex. Rixa ("The Medical Summary," May, 1902), says that during the preceding summer he had, perchance, more cases of ptomaine poisoning than in all his previous twenty-nine years of active practice. He attributes the prevalence to the extraordinary heat of the summer. Notwithstanding the severity of some of the cases, his patients all recovered. He proceeds:

"Before entering into a detailed description of some of the most severe cases, a definition of the word 'ptomaine,' with some views of competent authors, will be placed here.

" 'Ptomaine,' says V. C. Vaughan, 'may be defined as an organic chemical compound, basic in character and formed by the action of bacteria on nitrogenous matter.' He further states that 'some fish are always poisonous. Others are poisonous, or at least markedly so, only during the spawning season. Still others are subject to epidemic bacterial diseases, and those affected with certain of these diseases furnish flesh that is toxic to man, or in other words, the bacterial disease is transmitted to man with his food. Lastly, fish, like other kinds of meat, may become infected with saprophytic germs that may harm man.'

"Schmidt says: 'The poisonous substance is not distributed throughout the animal, but is confined to certain parts. The poisonous portion cannot be distinguished from the non-poisonous, either macroscopically or microscopically.'

"I treated altogether twelve cases, of which nine were fish, and three lobster poisoning.

"The best illustration of a severe case of fish poisoning is the case of William R., a grocer, thirty-two years of age, of robust and good health. He made his lunch of fish (none in the family could give me any information about the class of fish). It was an unusually hot day, in the month of July. He felt no discomfort until after midnight that day, when he was awakened by nausea and griping pain in his bowels. Soon vomiting set in of mucus, colored with bile. When I was summoned, I found the man with cold perspiration pouring down his face. Soon after, fever set in to a temperature of 102; pulse, 140; respiration about 40, shal-

low and irregular. Pain in the stomach and intestines, with great sensitiveness on pressure. I proceeded to wash his stomach and large intestines, administering right after a dose of five grains of calomel, following it up, the coming morning, with a bottle of citrate of magnesia, for the cleansing of the small intestines. Morning's temperature, 101; pulse, 130; with excessive tenderness to the digestive tract. Second day, temperature the same, pulse more firm; sensitiveness to stomach and bowels diminished; having had a number of watery stools during previous day and night. I prescribed an antiseptic intestinal wash, glycozone, two ounces, hot water, twenty-four ounces, for mornings and evenings. At my evening's call the temperature was 100; pulse, 110; respiration, 28. Having had some favorable experience with the internal use of glycozone in acute gastritis, I then prescribed a teaspoonful to be given, diluted with water, every three hours. I then prescribed a teaspoonful to be given, diluted with water, every three hours. This treatment was kept up for a week, until all unfavorable symptoms disappeared.

"The other case of serious nature was a lobster poisoning. Mrs. M. S., about twenty-five years of age, was eating a "fresh" lobster in a first-class restaurant, at night, after a theatre performance. She felt some discomfort right after eating it, but thought to counteract it by drinking a big dose of whiskey. She slept all night without disturbance. However, in the morning, when I was summoned, I found her suffering from nausea, vertigo, ringing in the ears, 'like big bells,' as she expressed it, pain in all the joints, and griping pain in the bowels; no stool. Temperature, 101.5; pulse, 140; respiration, 36. The same treatment as above was prescribed, and the woman made a quick recovery.

"All other cases were treated similarly, with gratifying results.

"However, taking good advice from my first case, I started with the antiseptic treatment at once, as I don't know of any better remedy to stop vomiting than Glycozone."

To Control Cough.—In the supplement to the "Journal of Tuberculosis" (January, 1902, page 101) the whole subject of tuberculosis is covered by a series of articles written by Dr. Carl Von Ruck. For controlling the cough of pleurisy, one of the complications of phthisis, the doctor says: "Cough must be allayed by heroin, codeine or even morphine, the choice being in the order named, but only when required on account of severe pain. I have also employed papine, which has given me very satisfactory re-

sults and which possesses the very desirable advantage of not causing constipation."

MEMBRANOUS COMPLICATIONS.—Walter M. Fleming, M. D., New York ("The Medical Era," September), says: "With all the experience of more than a quarter of a century, in the treatment of *winter cough,* and its complications of laryngeal, bronchial and pulmonary irritability, also dyspnœa, asthmatic spasms, and finally whooping cough—usually the most persistent and tenacious of all of these membranous maladies—I find no one remedy more strongly indicated, or which yields more prompt and satisfactory results than antikamnia and heroin tablets, composed of antikamnia, 5 grains, and heroin hydrochloride, 1-12th grain. The purpose of this combination is manifest at once, for it provides, primarily, a respiratory stimulant; secondly, a soothing sedative to the irritable mucous membrane, and thirdly, an antipyretic and analgesic. Result: A prompt and efficient expectorant, which at once relaxes the harsh and rasping cough, and releases the tenacious, sticky and gelatinous mucous, while its soothing influence is at once manifested, greatly to the comfort and contentment of the patient."

ARTICULAR RHEUMATISM.—Dr. F. W. Stewart, late assistant physician to Milwaukee County Hospital, reports excellent results from the use of Lambert's Lithiated Hydrangea in the treatment of two cases of complicated articular rheumatism due to excess of uric acid in the system, and which had resisted the remedies usually prescribed in such cases. The lithiated hydrangea was administered in one dram doses, three times daily; the effects were prompt and satisfactory, a complete recovery resulting after two weeks' medication and diet.—"Peoria Medical Monthly."

INSOMNIA.—The "sure cures" for insomnia are almost innumerable. One of the latest is that of a German, Prof. Fischer ("Doctor's Magazine"), who claims that it will not only bring about profound and refreshing sleep, but also increased mental strength. The discovery consists essentially in putting the pillow or pillows under the feet instead of the head. The advantages claimed for the innovation are that the venous circulation is favored and the heart needs to work less during sleep, hence the tired feeling on waking is prevented. The professor claims to be

in receipt of a great many communications from ladies all over the German Empire who are profuse in their praises of his epochal discovery.—"Denver Medical Times."

VIRTUES OF THE PINEAPPLE.

The partaking of a slice of pineapple after a meal is quite in accordance with physiological indications, since, though it may not be generally known, fresh pineapple juice contains a remarkably active digestive principle similar to pepsin. This principle has been termed "bromelin," and so powerful is its action upon proteids that it will digest as much as one thousand times its weight within a few hours. Its digestive activity varies in accordance with the kind of proteid to which it is subjected. Filbrin disappears entirely after a time. With the coagulated albumen of eggs the digestive process is slow, while with the albumen of meat its action seems first to produce a pulpy gelatinous mass, which, however, completely dissolves after a short time. When a slice of fresh pineapple is placed upon a raw beefsteak the surface of the steak becomes gradually gelatinous, owing to the digestive action of the enzyme of the juice.

Of course, it is well known that digestive agents exist also in other fruits, but when it is considered that an average-sized pineapple will yield nearly two pints of juice, it will be seen that the digestive action of the whole fruit must be enormous. The activity of this peculiar digestive agent is destroyed in the cooked pineapple, but unless the pineapple is preserved by heat there is no reason why the tinned fruit should not retain the digestive power. The active digestive principle may be obtained from the juice by dissolving a large quantity of common salt in it, when a precipitate is obtained possessing the remarkable digestive power just described.

Unlike pepsin, the digestive principle of the pineapple will operate in an acid, neutral, or even alkaline medium, according to the kind of proteid to which it is presented. It may, therefore, be assumed that the pineapple enzyme would not only aid the work of digestion in the stomach, but would continue that action in the intestinal tract. Pineapple, it may be added, contains much indigestive matter of the nature of woody fibre, but it is quite possible that the decidedly digestive properties of the juice compensate for this fact.—"The Lancet."

EDITOR'S TABLE.

SANITARIAN, NOVEMBER, 1902.

Embarrassment incidental to the death of the intended manager, under the new business arrangements, announced in October number, delays the completion of the organization. Meanwhile:

All Communications, business and otherwise, all exchanges and all publications for review, should be addressed to the Editor, as heretofore: Dr. A. N. Bell, 337 Clinton Street, Brooklyn, N. Y.

GOOD NEWS FOR CONSUMPTIVES.

The evidence is accumulating on every side (but on no side with more gratification to the votaries of preventive medicine than the promotion of the effort to exterminate the disease by true public press, anent this, from the New Orleans 'Times-Democrat'), that tuberculosis will by and by be numbered with small-pox, diphtheria, rabies and other diseases which have had the sting taken out of them by the discoveries of science.

"We saw the other day that, while up to a year or two ago, tuberculosis was responsible for a greater amount of mortality than any other individual disease, it has now been passed in the race by pneumonia, which last year claimed more victims than did tuberculosis. We saw, moreover, that this was due to a two-fold fact—that the mortality from pneumonia had materially increased, while the mortality from tuberculosis had as materially decreased. It is in this last fact that consumptives will see good news for themselves. Had pneumonia merely increased during the last decade of the nineteenth century so as to overtop the mortality from tuberculosis, there would have been no evangel or outlook of hope for consumptives in that; but as a decided decrease in the mortality from tuberculosis was concurrent with the increase in the mortality from pneumonia, there was in that something to make consumptives take heart.

"When in the ten years—1890-1900—the deaths from tuberculosis fell from 245.4 in every 10,000 of the population of the United States to 190.5 in every 10,000 of the same population, the indication clearly established by these statistics was that the dreaded disease was not only being held in check by improved methods of scientific hygiene, but that the ultimate disappearance of it was prefigured, even if it had not yet reached anywhere near to the disappearing point. The back of a conflagration is broken when the firemen manage to hold the fire in check, and there is

nothing left for them to do but to keep on pouring water on the flames until the fire is totally extinguished. It is the same with tuberculosis or any other disease; when hygienic science is not only able to hold the disease in check but also to contract its volume, the disease is in a fair way toward extinction; and the extinction will gradually but surely come if consumptives themselves and the friends by whom they are surrounded choose to observe strictly the rules which hygienic science prescribes for the proper treatment of the disease.

"Consumptives and their friends can never be too cautious as to the way in which the patient's sputum is disposed of. The careless handling of the sputum is what generally kills the patient. Being allowed to lie in open spittoons or in handkerchiefs, the sputum evaporates and the tubercular germs escape into the room, where they are again inhaled by the patient and proceed to repoison him. If either the sputum were destroyed or if it were deposited outside in the open air, where the germs would have a chance of escaping into the atmosphere, the patient would not only be unable to poison any one else with his sputum, but he would have an immeasurably better chance of recovery himself.

"We have frequently, in these columns, called attention to the healing powers of open air and sunshine on cases of consumption. The open air treatment which the great physicians all over the world now prescribe for consumptives is having triumphs recorded every day for its sanatory effects. In another column to-day, we print a dispatch from Albuquerque, N. M., from the United States sanatorium for soldiers: '"You may quote me as saying that we can cure consumption in every stage," said Major Appel, chief surgeon at Fort Bayard: "I have never before made that statement, but we have succeeded in demonstrating it beyond doubt." General MacArthur, who had been accompanied by Major Appel from the fort, indorsed the statement, and declared he had never been so much astonished and pleased with anything in his life as the result of careful investigation of the work at the government soldiers' sanatorium at Fort Bayard. The main features of the treatment that have proved so successful in the pure air of the elevated region are life out of doors, the most carefully selected, nutritious diet, and absolute rest in the case of reduced patients.'

"This is evidence which is really indisputable as to the healing effect on consumptives of the open air treatment; General MacArthur would have no interest in making such a statement if it were not literally true. Consumptives, therefore, should get them

into the open air, into the open air day and night, even if the air be not that of an elevated region. The worst open air is better for tuberculosis patients than the stuffy atmosphere of a room."

The Committee on the Prevention of Tuberculosis in New York has begun its work with a study of existing conditions. A plan of research is being worked out under a committee on statistics, of which Prof. Franklin H. Giddings, of Columbia University, is chairman.

Arrangements for lectures are progressing satisfactorily, with the commendation of workers in the social and religious field. The halls of the Young Men's Christian Association, of the Young Women's Christian Association, the auditoriums of the large institutional churches, and the meeting-rooms in the various settlements, have all been freely offered to the committee for lectures. Mothers' Meetings and Girls' Clubs will be addressed by women physicians, and arrangements are being made to secure lectures in Italian and Yiddish. The Board of Education will arrange for lectures in its lecture course, after the holidays. Dr. Leipziger, who has this matter in charge, said that if he had but four lectures at his disposal he would make this one of them. At the New York Normal College the president, Dr. Hunter, will arrange for lectures before the 2,800 young women who are students in that institution. The students will be divided into three groups, will take notes and review them. Dr. Hunter says that the matter is of the greatest importance for the young women themselves and for the homes from which they come.

Arrangements have now been made with the Department of Health, the Department of Public Charities, and the Tenement-house Department, whereby the Committee may make use of the facts in their possession. These departments have shown the greatest willingness to co-operate in every way, using facilities for acquiring information which a private committee cannot have at its command.

The Committee on Publicity has accepted some leaflets and pamphlets which have been submitted to it, and they will soon be printed for gratuitous circulation.

The cases of tuberculosis at present under the care of the Charity Organization Society have been visited by a trained nurse, and a visitor has also been engaged by the Committee. The note-book of both visitor and nurse contain already much interesting information, which will be made public through *Charities*.

A course of lectures will be given by the members of the Committee in the Assembly Hall of the United Charities Building. This course will treat the various aspects of the disease and will be especially intended for charity, church, and other philanthropic workers.

With the endorsement of the medical profession and the aid of an increasing public sentiment, the best skill and wisdom of medical science, and the support of an intelligent and discriminating public, it is certain that the aim of the Committee "to lower the death-rate from pulmonary tuberculosis and to lessen the suffering and distress attributed to this particular disease" will be attained.

"CHRISTIAN SCIENCE" CHARACTERIZED.

The "New York Times" of the 29th ult., referring to the death of the child Esther Quimby, at the hands of Christian Scientists, in White Plains, N. Y., October 20, appropriately remarks and quotes as follows:

"Having ourselves always used language of the utmost suavity and moderation in such few remarks about 'Christian Science,' its propagators and its followers, we are naturally much shocked to find that Dr. Parkhurst has employed terms in characterizing it and them that cannot fail to grieve the Eddyites deeply and to impose a lot of labor upon the press agents of the cult. In his sermon of last Sunday evening he referred to its revered leader as 'a shrewd but conscienceless woman, who lies and knows she lies (granting her to be of even ordinary intelligence), but who finds in the roomy vacuity of her susceptible devotees easy space for the inlodgment of her astounding conglomerate of piety and puerility.' The expression 'lies and knows she lies' strikes us as slightly pleonastic, since unwitting misstatement is not lying at all, according to common definitions; but what causes us most anxiety in the passage quoted is the phrase 'roomy vacuity.' It's a good phrase, as a phrase—there's no doubt about that. Indeed, it is so good, so picturesque, so obviously accurate, that we fear it will stick in the memories of the scoffing multitude, and that its frequent repetition in the future will disturb the holy calm which it is the ambition of the 'scientists' to preserve. And even that beautiful calm was treated with disrespect by the terrible Doctor. 'It is,' he said, 'an idle, listless fumbling with the great realities, to carry ourselves toward them with that same sort of insipid disregard with which a drooling infant might be expected to survey the beauty of the earth or the sublimity of the heavens.' Such talk

as that is likely seriously to interfere with the business interests of Mrs. Eddy's book agents, for their prosperity depends absolutely upon the willingness of clergymen and church people in general to continue the policy they have for the most part followed hitherto—the policy of kindly tolerance as toward a well-intentioned people who have gone slightly astray through a misunderstanding of certain texts. Had clergymen never taken this tone there would be no 'Christian Science' to-day, and at least nine-tenths of the 'healers' would be selling gold bricks and green goods. To some such occupation the majority of them will be forced to turn as the only alternative to work that comes within the limits of their intellectual capacities, if Dr. Parkhurst should have many clerical imitators on this particular topic, and can he with composure take such a responsibility upon his shoulders?"

It is a well recognized axiom in medical jurisprudence that he who promotes death causes it. The perpetrators in this case have been indicted by the Grand Jury, as many others long since should have been.

"Assistant District Attorney Weeks, of Westchester County, who, it is said, will have charge of the prosecution of any person or persons who may be held for the Grand Jury as a result of the death of Esther Quimby, has called attention to a section of the Penal Code that may be relied upon to find an indictment, Clause 1 of Section 288. The section reads:

" 'A person who wilfully omits, without lawful excuse, to perform a duty by law imposed upon him to furnish food, clothing, shelter, or medical attendance to a minor or to make such payment toward its maintenance as may have been required by the order of a court or a Magistrate when such minor has been committed to an institution . . . is guilty of a misdemeanor.' "

To be found guilty of misdemeanor, involving fine and imprisonment, even to the fullest extremity of the law, as it is to be hoped the culprits in this case may be, would be an extremely mild penalty for the single case. The whole cult is deserving of indictment and suppression for its systematic promotion of dangerous diseases and death.

BODIES STOLEN FOR DISSECTING PURPOSES.

The Medical and Surgical Monitor for October reports that seven self-confessed colored body resurrectionists are within the meshes of the law in Indianapolis. They have implicated a physician connected with one of the medical colleges, who bears a

good reputation. They have also insinuated that there are others who are guilty of wrong-doing in this same line of procedure. The men who have turned State's evidence will in all probability be punished, but it is the general belief that the physicians whose names have unfortunately been used in connection with the affair will be able to substantiate the denial which has been made by them.

The beginning of the investigation by the officers of the law originated from information obtained through a man who stated that he had been informed by some one, whose identity was unknown to him, that a member of his family who died recently could be found in the dissecting room of the Central College of Physicians and Surgeons. This proved to be true, and, like a flight of stair steps, the alleged facts linked together until it reached the acme of sensationalism.

We do not desire to condone the wrong-doings of others nor to uphold criminal acts in any sense whatever, but it is true, physicians and surgeons must possess an education upon a higher plane than was exacted twenty years ago. It is folly to think of any one reaching perfection in medicine and surgery without ample opportunity to study the cadaver. However, this must not be understood as a plea for the violation of the law, but it does emphasize the fact that the Legislature should enact a law which will give the medical colleges an opportunity to procure subjects for dissection.

Indiana's Laws Against Grave Robbing.

The recent tours of a band of graveyard desecrators in Indiana has brought into prominence the law governing such crime. Briefly, the statutes contain the following:

For disturbing a grave—Three to ten years in State prison.

For removing a corpse—Three to ten years in State prison.

For concealing a stolen corpse—One to three years in State prison.

For buying a stolen corpse—One to three years in State prison.

For failure to produce record of bodies received by medical college—One month to one year in county jail.

For receiving a corpse without record—One to five years in State prison.

For making false entry in record of corpse—One to three years in State prison.

For dissecting corpses of which there is no written record—Two to five years in State prison.

THE MALTINE COMPANY'S PRIZE AWARDS.

The two prizes offered by the Maltine Company for the best essays on "Preventive Medicine" have been awarded.

The first prize of $1,000 to Dr. W. WAYNE BABCOCK, of Philadelphia, and the second prize of $500 to Dr. LEWIS S. SOMERS, of the same city.

Two hundred and nine essays were offered in competition for the prizes, and practically every State in the Union was represented in the contest.

The Maltine Company announces that the prize-winning essays will be promptly published in permanent form and gratuitously distributed to the entire medical profession of the United States.

FOUR HUNDRED DOLLAR PRIZE.

Dr. J. B. Mattison, Medical Director, Brooklyn Home for Narcotic Inebriates, offers a prize of four hundred dollars for the best paper on the subject:

"Does the Habitual Subdermic Use of Morphia Cause Organic Disease? If so, What?"

Contest to be open two years from December 1, 1901, to any physician, in any language.

Award to be determined by a committee: Dr. T. D. Crothers, Hartford, Conn., Editor "Journal of Inebriety," Chairman; Dr. J. M. Van Cott, Prof. of Pathology, Long Island College Hospital, Brooklyn, and Dr. Wharton Sinkler, Neurologist to the State Asylum for the Chronic Insane, Philadelphia.

All papers to be in the hands of the Chairman, by or before December 1, 1903; to become the property of the American Association for the Study and Cure of Inebriety, and to be published in such journals as the committee may select.

THE CHICAGO PASTEUR INSTITUTE.

The Chicago Pasteur Institute has issued a summary of the results of the preventive inoculations against hydrophobia attained since its inauguration July 2, 1890.

To October 25 a grand total of 1,538 patients were treated.

1,382 persons were bitten by dogs, 48 by cats, 55 by horses, 15 by skunks, 5 by wolves, 11 by cows, 5 by calves, 1 by a burro, 2 by coyotes, 1 by a rat, 3 by mules, 1 by a pig, and 9 by hydrophobic human beings.

762 persons received severe and multiple lacerated bites on the hands and wrists, 209 on the head and face, 208 on the arms, 327 on the legs and thighs, and 32 on the trunk.

Following the rule of Pasteur, the patients treated have been classified as follows: First—Persons bitten by animals recognized and ascertained to be rabid by the test experiment made in the laboratory or by the death of other persons or animals bitten by the same animal. Of this class 660 were treated. Second—Persons bitten by animals recognized to be rabid by the symptoms of disease shown during life. Of this class 647 were treated. Third—Persons bitten by animals strongly suspected to be rabid. Of this class 231 were treated.

Only 7 deaths have been reported, thus giving a mortality of 0.45 per cent.; a result which is marvellous when accurate statistics show, that before the discovery of the Pasteur treatment, the mortality was as high as 88 per cent. for the bites of the face, 67 per cent. for bites of the hands, and 20 to 30 per cent. for bites of the limbs and trunk.

Four persons were overtaken by hydrophobia at the Institute while under treatment. This was due to the lateness of their coming, many days having passed since they were bitten. Hence, we cannot urge too strongly the necessity of applying for treatment at once after being bitten. *The sooner the better.* Every day that passes, shortens the period of incubation and also the chances of successful results.

All patients tolerated the treatment perfectly well. It being absolutely harmless it can be taken with confidence and without fear of injury to the health. The treatment consists in hypodermic injections of a specially prepared virus of different gradation of strengths for a period of fifteen days, eighteen days or twenty-one days, according to the severity of the case. The method used is identical with that used in Paris.

Warning: Patients should be directed to the Institute building, 228 Dearborn Avenue (near Chicago Avenue), and warned to beware of "hotel runners" and "confidence men" around the railroad depots.

LIFE OF THE TYPHOID BACILLUS.

A bacteriologic test of specimens of earth taken from the site of Camp Thomas, at Chickamauga, is being made to determine if the typhoid bacilli responsible for the recent outbreak of typhoid fever had retained their vitality since the epidemic during the Spanish-American war.—"American Medicine."

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirtieth Annual Meeting, New Orleans, La., December 8, 9, 10, 11, 12, 1902.

Local Committee of Arrangements.

Dr. F. Formento; Dr. A. Nolte; Dr. L. F. Salomon; Dr. Isadore Dyer; Dr. O. L. Pathier; Dr. J. B. Guthrie; Dr. P. E. Archinard; Dr. Q. Kohnke; Dr. H. S. Lewis; Dr. P. L. Reiss; Dr. H. A. Veazie; Dr. S. R. Olliphant; Dr. G. F. Patton; Dr. F. W. Parham; Dr. R. Matas; Dr. D. Martin; Mr. J. C. Smith; Dr. H. P. Jones; Dr. M. Levy; Dr. E. L. McGehee; Dr. F. J. Chalaron; Dr. W. R. Mandeville; Dr. C. P. Wilkinson, Chairman.

The Executive Committee has selected the following topics for consideration, but papers will be received upon other sanitary subjects:

I. The Pollution of Public Water Supplies.
II. The Disposal of Refuse Material.
III. Animal Diseases and Animal Food.
IV. Car, Steamship and Steamboat Sanitation.
V. Etiology of Yellow Fever.
VI. Demography and Statistics in Their Sanitary Relation.
VII. Cause, Prevention, Period of Incubation and Duration of Infectious Diseases.
VIII. Public Health Legislation.
IX. Cause and Prevention of Infant Mortality.
X. Disinfectants and Disinfection.
XI. National Leper Homes.
XII. Dangers to the Public Health from Illuminating and Fuel Gas.
XIII. Transportation of Diseased Tissue by Mail.
XIV. The Teaching of Hygiene and Granting of Diploma of Doctor of Public Health.
XV. Sanitary Aid Societies.
XVI. The Relative Immunizing Value of Human and Bovine Vaccine Virus.
XVII. The Investigation of the Canteen System of the United States Army.

EXECUTIVE COMMITTEE.

The headquarters of the Executive Committee will be at The New St. Charles Hotel. A meeting of the committee will be held in the hotel parlor on Monday, December 8th, at 10 a. m. Subsequent meetings of the committee will be held daily at such hours as hereafter may be determined.

Section of Bacteriology and Chemistry.

This section will meet at 9 a. m., December 8th. The programme will be issued at that time.

Railroad Rates.

The Local Committee has arranged with the railroads for a rate of one-and-one-third fares for the members of the Association and their friends attending the meeting. This arrangement will be effected by the certificate plan—members paying a one-way fare and taking a receipt for the same from the local ticket-agent selling the same; upon presentation of this receipt, they will receive a certificate of membership and attendance from the Secretary. This certificate will be presented to the joint agent of the railway companies, who will be present at the meeting, and who will issue, at that time, a return trip ticket at reduced rates.

THE PAN-AMERICAN SANITARY CONGRESS will meet in Washington on December 2d. The object of the conference will be to definitely discuss some practicable universal plan for the prevention and suppression of yellow fever and other plagues in Pan-American ports. Surgeon-General Wyman, of the United States Public Health and Marine Hospital Service, was a prime mover in the inauguration of the congress and will take part in its proceedings as a delegate from the United States.

MORTALITY AND MORBIDITY REPORTS AND REVIEWS.

VITAL STATISTICS OF THE UNITED STATES—CENSUS REPORT, 1900.

Data relating to *Births* are confessedly the most unsatisfactory of any treated in the report.

The total population within the boundaries of the United States in 1890 was 62,947,714, and the natural increase between 1890 and 1900, due to excess of births over deaths, was 12,315,361. The average annual rate of excess of births was 17.7 in 1,000 of population.

Accepting the population figures showing the increase in native population by state of birth as correct, the only uncertain factor in estimating the birth rate is the assumed annual death rate, 17.4. This can be accepted as a sufficiently accurate approximation to indicate the birth rate will not vary from the stated number (35.1) more than 2 per 1,000 in either direction, or from 33.1 to 37.1. This, however, applies only to the country as a whole. Differentiated, the average annual rate of increase by excess of birth in the class born of native white parents was 19.5 in 1,000, while in those of foreign white parents it was 36.5 per 1,000. The rate of the colored was less than for those of native white parents (17.8 per 1,000).

Considered by groups of States: In the Northern Division the rate of annual increase of children of native white parents was but 3.8 per 1,000, while in those of foreign white parents it was more than ten times as great, 39.6. Excluding New York from this group, it appears that in the New England States, the annual death rate of the native whites of native parentage exceeded the birth rate by 1.5 per 1,000, while among those of foreign white parents, the birth rate exceeded the death rate by 44.5 per 1,000. In the remainder of the country, the excess of births was 21.1 for those of native white parents, 35.7 for those of foreign white parents, and 17.9 for the colored. The nearest approach to equality in the rate of excess of births of native and foreign white parents was in the Southern Division, where the proportion of foreign parents was least (native white parents, 24.1; foreign parents, 27.4).

In the New England States, taken together, the total population of 4,700,749 in 1890 was increased during the decade by 302,805 immigrants from foreign countries, and 139,686 immigrants from other States. Considering the total increase by immigration as consisting entirely of productive population it amounts to less than 10 per cent. of the population in 1890.

The population under one year of age, June 1, 1900, was 1,912,863, and the number of those who were born during the census year, but who died before the date of enumeration, was 136,269. If these figures were correct the number of births would be 2,049,132, and the birth rate per 1,000 of mean population would be 27.2. Of the stated number of births, the population under one year of age represents 93.3 per cent, and the "born and died" represents 6.7 per cent. But owing to the incorrect return of population at this age, the number of births so computed is much too small. The deficiency arising from the incomplete return of deaths is comparatively insignificant. Comparing the birth rate as obtained, the deficiency in the rate for the census year appears to be 7.9 per 1,000 of population, or 28.5 per cent. If it be assumed that the general birth rate for the census year was about the same as the average annual rate found necessary to produce the increase in native population enumerated (35.1 per 1,000 of mean population), the number of births in the year would be 2,644,512, an increase of 595,380, or 29 per cent. The total deficiency probably amounted to at least 25 or 30 per cent. at each census. So far as the imperfect data furnish any indication of the comparative birth rates in the two years, they show a slight increase in the rate of 1900 over that of 1890, amounting to 0.3 per 1,000 of the mean population.

Of Deaths, the total number reported in the United States for the census year was 1,039,094. In 1890 the corresponding number was 841,419. These numbers are exclusive of stillbirths.

The increase in the number of deaths reported over 1890 is 197,675, or 23.5 per cent. As the percentage of increase in the number of deaths is greater than the percentage of increase in the population for the same period (20.7), it indicates a more complete return of deaths than 1890. The gain in point of completeness is actually much greater than indicated by the figures, because the general death rate has decreased very greatly.

The average age at death, in comparison with 1890, was a very regular decrease at each age up to sixty years, and an increase in the rates at each age above sixty years, as follows:

Under one year, 1900, 165.4; 1890, 205.8. Under 5 years, 1900, 52.1; 1890, 6.8; 5 to 9 years, 1900, 5.2; 1890, 7.8; 10 to 14 years, 1900, 3.3; 1890, 3.8; 15 to 19 years, 1900, 5.2; 1890, 6.0; 20 to 24 years, 1900, 7.5; 1890, 8.4; 25 to 29 years, 1900, 8.6; 1890, 9.9; 30 to 34 years, 1900, 9.4; 1890, 16.6; 35 to 39 years, 1900, 11.0; 1890, 12.5; 40 to 44 years, 1900, 12.2; 1890, 13.5; 45 to 49 years, 1900, 15.2; 1890, 16.5; 50 to 54 years, 1900, 19.1; 1890, 17.2; 55 to 59 years, 1900, 26.3; 1890, 26.5; 60 to 64 years, 1900, 35.1; 1890, 32.8; 65 to 69 years, 1900, 52.2; 1890, 49.0; 70 to 74 years, 1900, 75.2; 1890, 64.5; 75 to 79 years, 1900, 110.5; 1890, 103.2; 80 to 84 years, 165.8; 1890, 144.6; 85 to 89 years, 1900, 241.3; 1890, 215.5; 90 to 94 years, 1900, 339.2; 1890, 260.0; 95 years and over, 1900, 418.9; 1890, 347.1.

Taking the deaths at all ages in the entire registration area, the average ages at death in white persons having mothers born in the specified countries, were as follows: Scotland, 48.6; France, 45.7; England and Wales, 45.1; Ireland, 42.8; Germany, 41.1; United States, 34.2; Bohemia, 26.7; Scandinavia, 26.1; "other foreign" countries, 24.9; Canada, 24.7; Russia, 17.4; Hungary, 17.4; Poland, 14.5, and Italy, 13.9. For those dying at fifteen years of age and over, the averages at death of white persons having mothers born in the specified countries, stated in the order of their magnitude, were as follows: Scotland, 57.7; England and Wales, 56.9; United States, 56.4; France, 56.4; Germany, 54.2; Ireland, 51.7; Bohemia, 48.2; "other foreign" countries, 48.1; Canada, 46.8; Poland, 44.8; Scandinavia, 44.6; Russia, 44.0; Italy, 41.5; and Hungary, 41.4.

"Population, Deaths, and Death Rates:" Population, 1900, 75,994,575; deaths, 1,039,094; population, 1890, 62,947,714; deaths, 841,419. Of rates, "data insufficient to afford correct rates." Of *registration*, however: Population, 1900, 28,507,269; deaths, 512,669; rate, 17.8; population, 1890, 19,659,440; deaths, 386,212; rate, 19.6.

The population of the United States and of the registration area is distinguished as urban (in cities of 8,000 and over), and rural; 86.7 per cent. is urban, embraced in the registration record and amounts to 75.2 per cent. of its total. The rural population constitutes 24.8 per cent. of the population of the registration area, and 14 per cent of the total population.

As the registration area with its death rate of 17.8 per 1,000 is very largely urban, and the non-registration area is almost wholly rural in its character, it is probably that the death rate in the latter

more nearly approximates the death rate in the rural part of the registration States (15.4 per 1,000). This would fix the general death rate of the country somewhere between 15.4 and 17.8 per 1,000. If it is assumed that the death rate in the rural part of the registration States fairly represents the rate in the rural part of the registration States, the general death rate would be about 16.3 per 1,000. The decrease in the death rates in the registration for 1900, is shown by the following: Registration record, 1900, 17.8; 1890, 19.6; decrease, 1.8; cities, 1900, 18.6; 1890, 21.0; decrease, 2.4; States total, 1900, 17.3; 1890, 19.5; decrease, 2.2; cities, 1900, 18.6; 1890, 22.1; decrease, 3.5; rural, 1890, 15.4; 1890, 15.3; increase, 1.

Infant Mortality Under One Year of Age Per 1,000 of Population.

Aggregate—165.4; cities, 179.9; rural, 117.4; white, 158.0; cities, 171.1; rural, 116.0; native, 158.0; cities, 171.2; rural, 116.0; both parents native, 148.8; cities, 175.1; rural, 110.1; one or both parents foreign, 164.4; cities, 175.0; rural, 162.2; foreign, 149.0; cities, 159.9; rural, 114.6; colored, 371.5; cities, 387.0; rural, 218.9.

Deaths Under One Year of Age Per 1,000 Births:

Aggregate—149.4; cities, 161.2; rural, 108.7; white, 143.4; cities, 154.2; rural, 107.5; native, 143.3; cities, 154.3; rural, 107.5; both parents native, 135.3; cities, 157.0; rural, 102.3; one or both parents foreign, 149.2; cities, 158.0; rural, 116.7; foreign, 141.1; cities, 150.7; rural, 110.2; colored, 297.0; cities, 307.0; rural, 190.3.

The average age at death of all decedents in the entire registration area was, of native whites of native parents, 36 years (males, 34.9; females, 37.3); more than twice as great as the average age of native whites having one or both parents foreign, 15 years. The average age of the colored was 28 years, and that of the foreign whites, 55.7 years. The average age of the foreign whites is greatly raised by the small proportion of infants and children subject to death. In all classes the average age of females was slightly greater than that of males. As per preliminary announcement (Census Bulletin 83, August 20, 1901):

"The most important feature of the results presented is found in the decrease in the general death rate in the registration area of 1.8 per 1,000 of population, a decrease of nearly 10 per cent., and the decrease in the rates from the particular diseases to which the general decrease is due.

"The effect of the advances made in medical science and sanitation and in the preventive and restrictive measures enforced by the health authorities is still more strikingly shown in the comparative rate for the registration cities of the country taken together. In 1890 the death rate in 271 registration cities of 5,000 or more population was 21 per 1,000; in 1900 the rate was 18.6 per 1,000 in 341 cities of 8,000 population and upward, a reduction of 2.4 per 1,000. The gross population of the cities comprehended was 14,958,254 in 1890, and 21,660,631 in 1900.

"The entire significance of these figures can be properly weighed only when the rates for the individual cities are considered in connection with known conditions of local improvement in sanitation and health regulations—factors which are not of a statistical nature and which were not developed by the inquiries in the schedules.

"The decrease in the general death rate, and in the rates due to diseases most frequent in the early years of life, on one hand, and the increase in the rates due to those diseases occurring generally at advanced ages, on the other, mean also increased longevity.

"The average age at death in 1890 was 31.1 years; in 1900 it was 35.2 years."

The causes of death and *proportion* per 100,000 from all causes, for the two census years, 1900 and 1890, respectively, were as follows:

Consumption, 1900: 111,059; 10,688—1890: 102,199; 12,146. Pneumonia, 1900: 105,971; 10,198—1890: 76,496; 9,091. Heart disease, 1900: 69,315; 6,671—1890: 44,959; 5,343. Diarrhœal diseases, 1900: 46,907; 4,514—1890: 47,201; 5,610. Unknown cause, 1900: 40,539; 3,901—1890: 34,286; 4,074. Kidney diseases, 1900: 36,724; 3,534—1890: 19,457; 2,312. Typhoid fever, 1900: 35,397; 3,405—1890: 27,058; 3,216. Cancer, 1900: 29,475; 2,837—1890: 18,536; 2,203. Old age, 1900: 29,222; 2,812—1890: 16,591; 1,972. Apoplexy, 1900: 26,901; 2,589—1890: 14,999; 1,783. Inflammation of the brain and meningitis, 1900: 25,664; 2,470—1890: 17,775; 2,113. Cholera infantum, 1900: 25,576; 2,461—1890: 27,510; 3,269. Paralysis, 1900; 23,865; 2,297—1890: 16,570; 1,969. Bronchitis, 1900: 20,223; 1,946—1890: 21,442; 2,546. Debility and atrophy, 1900: 17,282; 1,663—1890: 25,536; 3,035. Influenza, 1900: 16,645; 1,602—1890: 12,957; 1,540. Diphtheria, 1900: 16,475; 1,586—1890: 27,815; 3,307. Convulsions, 1900: 15,505; 1,492—1890: 16,598; 1,973. Malarial fever 1900: 14,874; 1,431—1890: 18,594; 2,210. Premature birth, 1900: 14,720; 1,417—1890:

7,636; 908. Diseases of the stomach, 1900: 13,484; 1,298—1890: 8,080; 960. Measles, 1900: 12,866; 1,238—1890: 1,100. Croup, 1900: 12,484; 1,201—1890: 13,862; 1,647. Diseases of the liver, 1900: 12,249; 1,179—1890: 9,460; 1,124. Diseases of the brain, 1900: 11,649; 1,104—1890: 12,322; 1,464. Inanition, 1900: 11,382; 1,095—1890: 6,995; 831. Dropsy, 1900: 11,264; 1,084—1890: 10,070; 1,197. Whooping cough, 1900: 9,958; 958—1890: 8,432; 1,002. Peritonitis, 1900: 7,501; 722—1890: 4.995; 594. Railroad accidents, 1900: 6,930; 667—1890: 5,756; 684. Septicemia, 1900: 6,776; 652—1890: 3,748; 445. Burns and scalds, 1900: 6,772; 652—1890: 3,850; 458. Scarlet fever, 1900: 6,333; 609—1890: 5,969; 709. Suicide, 1900: 5,498; 529—1890: 3,932; 467. Drowning, 1900: 5,387; 518—1890: 5,104; 607. Appendicitis, 1900: 5,111; 492—1890: —— Rheumatism, 1900: 5,064; 488—1890: 4,508; 536. Diabetes, 1900: 4,672; 450—1890: 2,407; 286. Hydrocephalus, 1900: 4,302; 414—1890: 4,338; 516. Cerebrospinal fever, 1900: 4,174; 402—1890: 3,333; 396. Gunshot wounds, 1900: 4,060; 391—1890: 2,552; 303.

It is particularly noteworthy in the foregoing summary and encouraging to sanitary effort, that the decreases in mortality are, for the most part, from diseases recognized as amenable to preventive methods.

From Smallpox, the total number of deaths reported during the census year was 3,484, 3.5 per 1,000 deaths from all causes. In 1890, the number of deaths from this disease was 398 and the ratio was 0.5 to 1,000 deaths from all causes. Of the 3,484 deaths from this disease in 1900, 461.8 were of infants under five years of age; the next largest number in the quinquennial estimates was 260.9, from 20 to 24 years of age. The least number of any quinquennial under 55-59 was 53.1 from 10 to 14; these numbers carry their significance relative to vaccination.

A supplementary statement has been issued, showing the increasing age of the population of this country from decade to decade. The statement gives the results of computing the median instead of the average age. The median is such an age that half the population is under it and half is over it. The median age of the total population in 1900 was 22.8, as compared with 21.9 in 1890. The median age of the white population in the last census year was 23.4, and the colored, including negroes, Indians and Mongolians, was 19.7, while in 1890 the white population was 22.4 and the colored 18.3. The report shows there was an increase in the median age of the white population during each decade from 1810

to 1900 amounting in the ninety years to 7.4 years. The statement adds: "Many complex influences have co-operated in producing as a resultant this steady change in the age composition of the population. There may be mentioned, the rapid progress of medical and sanitary science, which has tended to increase the average length of life; the decrease in the relative number of children born, which has made the earlier age periods less preponderant numerically in the total population, and the influx, especially since 1840, of great numbers of adult immigrants, increasing the number in the older age periods."

NEW YORK.—The State is divided into sanitary districts as follows: Maritime District: Includes New York, Brooklyn, Long Island, Staten Island and Westchester County. Hudson Valley District: All the counties on either side of the Hudson River, except Westchester, to and including Albany and Rensselaer. Adirondack and Northern District: The northern section of the State—the counties of Washington, Warren, Hamilton, Essex, Clinton, Franklin, St. Lawrence, Jefferson and Lewis. Mohawk Valley District: Schenectady, Schoharie, Saratoga, Montgomery, Fulton, Herkimer and Oneida counties. Southern Tier District: The seven counties along the southern border of the State. East Central District: Sullivan, Delaware, Otsego, Madison, Chenango, Onondaga and Cortland counties. West Central District: Cayuga, Tompkins, Seneca, Schuyler, Ontario, Yates, Livingston, Genesee and Wyoming counties. Lake Ontario and Western District: Oswego, Wayne, Monroe, Orleans, Niagara and Erie counties.

Bulletin for August, 1902:

Maritime District, 3,948,906: deaths, 6,289; death rate, 18.9; per cent. of deaths under five years, 45.0; from zymotic diseases, per 1,000, from all causes, 280; from cerebrospinal meningitis, 19; from typhoid fever, 96; from malarial diseases, 16; from smallpox, 7; scarlet fever, 32; measles, 21; erysipelas, 12; whooping cough, 75; diphtheria and croup, 112; diarrhœal diseases, 1,376; consumption, 616; acute respiratory diseases, 494; cancer, 229.

Hudson Valley, 690,000: Deaths, 931; death rate, 15.6; per cent. of deaths under five years, 30.7; from zymotic diseases, per 1,000, from all causes, 235; typhoid, 13; scarlet fever, 1; diphtheria and croup, 16; diarrhœal diseases, 170; consumption, 72; acute respiratory diseases, 31; cancer, 45.

Adirondack and Northern, 394,772: Deaths, 403; death rate, 12.0; per cent. of deaths under five years, 21.5; from zymotic diseases, per 1,000, from all causes, 125; from typhoid, 5; whooping cough, 3; diphtheria and croup, 7; diarrhœal diseases, 34; consumption, 45; acute respiratory diseases, 13; cancer, 20.

Mohawk Valley, 419,773: Deaths, 526; death rate, 15.6; per cent. of deaths under five years, 30.8; from zymotic diseases, per 1,000 from all causes, 215; cerebrospinal meningitis, 4; from typhoid, 7; scarlet fever, 3; diphtheria and croup, 7; diarrhœal diseases, 88; consumption, 36; acute respiratory diseases, 27; cancer, 17.

Southern Tier, 429,530: Deaths, 496; death rate, 14.0; per cent. of deaths under five years, 20.5; from zymotic diseases, per 1,000, from all causes, 175; from typhoid fever, 11; scarlet fever, 1; whooping cough, 3; diphtheria and croup, 8; diarrhœal diseases, 62; consumption, 38; acute respiratory diseases, 18; cancer, 21.

East Central, 402,660: Deaths, 511; death rate, 15.8; per cent. of deaths under five years, 22.5; from zymotic diseases, per 1,000, from all causes, 72; from cerebrospinal meningitis, 3; from typhoid, 7; whooping cough, 5; diphtheria and croup, 2; diarrhœal diseases, 72; consumption, 45; acute respiratory diseases, 16; cancer, 24.

West Central, 316,000: Deaths, 346; death rate, 13.0; per cent. of deaths under five years, 17.3; from zymotic diseases, per 1,000, from all causes, 150; cerebrospinal meningitis, 2; from typhoid, 4; whooping cough, 3; diphtheria and croup, 4; diarrhœal diseases, 42; consumption, 33; acute respiratory diseases, 13; cancer, 18.

Lake Ontario and Western, 876,206: Deaths, 1,130; death rate, 15.2; per cent. of deaths under five years, 34.0; from zymotic diseases, per 1,000, from all causes, 264; from cerebrospinal fever, 5; typhoid, 22; smallpox, 2; scarlet fever, 2; measles, 2; whooping cough, 11; diphtheria and croup, 8; diarrhœal diseases, 245; consumption, 99; acute respiratory diseases, 52; cancer, 69.

Entire State, 7,467,050: Deaths, 10,633; death rate, 17.0; per cent. of deaths under five years, 38.0; from zymotic diseases, per 1,000 from all causes, 250; from cerebrospinal meningitis, 40; typhoid, 165; malarial diseases, 21; smallpox, 10; scarlet fever, 39; measles, 28; erysipelas, 14; whooping cough, 110; diphtheria and croup, 61; diarrhœal diseases, 2,089; consumption, 984; acute respiratory diseases, 664; cancer, 443. Average death rate for August for past six years, 18.4.

City of New York, 3,632,501: Deaths during the four weeks

ended October 4, 4,452; death rate 15.99; deaths from consumption, 891; diphtheria and croup, 822; measles, 158; scarlet fever, 383; smallpox, 15; varicella, 42; typhoid fever, 640; diarrhœal diseases, 713; diarrhœal diseases under 5 years, 648; deaths under 5 years, 2,036.

The remarkable fatality of *varicella* since the decline of smallpox, is, to say the least, surprising. For it seems to have become so only since the decline of the mild smallpox that has so long prevailed. But *smallpox* is again on the increase. For the week ending October 25 there were reported 12 new cases of smallpox as compared with two cases the previous week. A physician in the northern section of the city was summoned before the Bureau of Health to explain his failure to report six cases under his care in one house. He candidly stated that he had erred in his diagnosis, and was advised to report at once any suspicious cases in the future. A resolution advising vaccination was adopted.

President Lederle, of the Department of Health, has addressed a circular letter to every one of the 7,000 physicians in the city, asking their co-operation in preventing a return of smallpox during the coming cold season. Dr. Lederle states that at present the city is practically free from the pest, but is constantly exposed to reinfection from many communities where it still rages. He appeals to the doctors to see that every member of their own and their patients' households, as well as everybody else whom they can influence, be vaccinated, except in the case of individuals upon whom the operation has been successfully performed within five years or less.

"The prevalence of the disease," says Dr. Lederle in this letter, "has been largely the result of neglect of revaccination at proper intervals and to the failure in primary vaccinations. Protection conferred by vaccination is almost absolute, in the experience of the department, for certain periods varying in different persons from three to seven years."

The doctors are also asked to see that only fresh and reliable virus is used, and to watch the progress of inoculations and repeat, or have them repeated, in cases where they are not successful. The latter states that free vaccination can be had at the department offices, at Sixth Avenue and Fifty-fifth Street, daily from 9. a. m. to 9 p. m., and on Sundays from 9 a. m. until noon, and at each of the other borough offices from 9 a. m. until 4 p. m.

"It is earnestly hoped," says Dr. Lederle in conclusion, "that with the adoption of energetic measures now the disease may be

completely stamped out in New York and the city kept free from it. With this end in view the Board again earnestly appeals for the assistance of all practicing physicians."

The Board has requested $20,000 for immediate vaccination. Last year nothing was done at this time, which the Health Department officials now consider to have been a great mistake in view of the prevalence of the scourge during last winter.

Diseased Eyes in Schools have also attracted the earnest attention of President Lederle. In thirty-six schools which the medical inspectors examined last spring they found 6,000 children affected with *Trachoma,* a contagious eye disease, which crept in here through Ellis Island before the authorities knew of its dangerous character, or of its great prevalence among immigrants from Southern and Eastern Europe. The indifference to it at the immigration office, and the ignorance of parents through which it has been spread, is because trachoma is a granulation of the eyelids. There is a granulation of the lids which, while painful, is not contagious nor especially dangerous, and the distinction between the two is not obvious except to physicians. Trachoma is contagious, and, if neglected, leads to a total loss of sight. It is communicated, as ophthalmia is, by the use of common towels in tenement houses, factories and public places. It is even charged that in the early days of the disease here the medical inspectors in the schools spread the contagion by examining the eyes of children with their bare fingers and then passing from child to child without disinfecting their hands.

All that has been stopped and the work in the schools and at the Immigration Bureau will be well done now that the extent of the danger is understood.

More Rigid Medical Inspection of the Schools has been instituted, and within the first month following the opening of the school term two thousand pupils were excluded because of some form of contagious disease. This has called forth indignant protests from the parents, but the Health Department announces that it is willing, so far as it is practicable, to treat medically such of these children as are too poor to receive the proper care from private physicians. The Health Commissioner has now very greatly reduced the number of school physicians, and has increased the salary fourfold. In return for this better compensation, each of these medical inspectors is now required to look after three schools, making daily visits to each school, and each day personally inspecting all of

the scholars in one of these schools. In this way all public school pupils are to be inspected once every three days. The results have already amply justified the change, as under the old régime less than one-tenth of the number of cases of contagious disease would have been detected and excluded. Moreover, important changes have been made in the methods of the Health Board Inspectors in examining the children of the public schools. As far as possible, pupils are to be examined in rooms other than regular class-rooms. The inspectors have already been instructed not to use their bare hands in examining children's eyes. Tufts of sterilized cotton must be used above and below the eyelids. These changes are brought about as a direct result of certain representations, on behalf of parents and teachers, made to the President of the Health Board, by Superintendent William H. Maxwell of the public schools.

Meantime, parents are urged to caution their children about the danger of *Trachoma* and to teach them the need of great care to avoid the means of contracting it. No towel in any public lavatory ought ever to be touched to the face, and among school children a handkerchief should be strictly personal property. Above all, any inflammation of the eyes should be taken to a physician promptly, so that if it is contagious the patient may be treated in the early stages for his own good and secluded for the safety of his family. The disease is less prevalent in Brooklyn than in Manhattan, but the communication in street cars between all parts of the city is continuous, and the efforts of the Board of Health should be supplemented by keen private watchfulness.

CALIFORNIA.—San Francisco, 360,000. Bubonic plague reported ("Occidental Medical Times" for October.) August 26-Sept. 2: 4 cases, all Chinamen, and all fatal; total to date, 72. Official reports seem to be suspended.

Los Angeles, 120,000. Report for September: Deaths, 148, 32 under five years; annual death rate, 12.33. Deaths from tuberculosis, 24; 6 had lived here less than three months, 2 between three and six months, 3 between six and twelve months, 7 between one and five years, 2 between five and ten years, 3 over ten years, 1 for life.

COLORADO.—Denver, 150,000. Bureau of Health report for August: Total number of deaths, 210; premature and still birth, 6; deaths from phthisis, 39, contracted elsewhere, 34; cancer, 7;

death rate per 1,000 per annum, 16.80. Infectious diseases: diphtheria, 56 cases, 8 deaths; typhoid fever, 97 cases, 15 deaths; measles, 7 cases; whooping cough, 1 case and death; smallpox, 8 cases; erysipelas, 3 cases, 1 death.

CONNECTICUT.—By mortality reports received there were 1,166 deaths during the month of September. This was 182 less than in August, and 69 less than in September of last year, and 62 less than the average number of deaths in September for the five years preceding. The death rate was 16.1 for the large towns, for the small towns 13.3, and for the whole State 15.4. The deaths reported from infectious diseases, including diarrhœal, were 349, being 29.9 per cent. of the total mortality. Deaths from diphtheria and croup, 20; typhoid fever, 23; malarial fever, 13; whooping cough, 16; consumption, 72.

The Vaccination of School Children.

The Town Health Officers, influenced by the general prevalence of smallpox in every part of the Union, and its more frequent invasion of Connecticut during the past few months, have very generally submitted the following regulation to the State Board of Health, for approval, as required by law to make it effective. The regulation:

No superintendent, principal or teacher of any public or private school in this town shall permit any child to attend school until such child shall have been vaccinated, or shall have produced evidence from a physician that, in the opinion of such physician. it would not be prudent, on account of sickness, for such child to be vaccinated.

The only towns of considerable population that did not submit the regulation for approval are Thompson and Windham. Thompson reported 32 cases of smallpox in July and August, the largest sick rate, from smallpox, of any town in the State in proportion to population.

DISTRICT OF COLUMBIA, 278,880—86,467 colored. Deaths in the week ended on Saturday, October 4, 99, as compared with 93 in the previous week and 111 in the corresponding period of last year. Of the decedents last week 63 were white, a death rate of 16.1; colored, 36; death rate, 20.8. For the preceding week the rate was 14.1, and for last year 21.8 for the total population. There was a decrease from 12 to 9 in mortality from brain dis-

eases, and from 8 to 3 from diarrhœal complaints, while an increase from 9 to 17 occurred in the number of deaths from consumption. There were 7 fatal cases of typhoid fever, and 1 from diphtheria. By violence there were 8 deaths, one being suicidal, 3 homicidal and 4 by accidental falls.

Typhoid fever cases reported carried forward from the previous week, 384 cases. During the week 48 new cases were reported and 38 discharged, leaving 394 cases under medical supervision. The number of cases under treatment is not a fair index to the present prevalence of the disease, which is shown best by a comparison between the numbers of cases reported during various successive periods. The number of cases reported during the past week was 48. The average number reported weekly during the preceding ten weeks, approximately the duration of the present outbreak, was 71. At no time during that period did the number of reported cases fall lower than during the past week, and during only one week, August 3d to 9th, did it fall so low.

Ten cases of *scarlet fever* were in quarantine at the close of last report. During the week 2 new cases occurred and 3 were discharged, leaving 9 cases with warning cards in 9 premises. Of *diphtheria* 8 cases were in quarantine, 7 new cases were reported and 4 discharged, leaving 11 cases in 10 premises.

In the hospital there were 7 cases of *smallpox* under treatment. During the week 1 new case developed, and 3 having been discharged, left 5 cases in that institution at the close of the week.

ILLINOIS.—Chicago.—Bulletin for the week ended October 11, 1902: The number of deaths reported, 403, with one exception, was the lowest October mortality on record for the city of Chicago. The annual rate was 11.53 per thousand of the estimated mid-year population, 1,820,000. In the week ended October 19, 1901—a phenomenally healthful year in all parts of the world—the total reported deaths were 370, and the annual rate was 10.95 per thousand of the estimated mid-year population, 1,758,000.

There has been nothing in the weather conditions, the character of the water supply or any of the other factors affecting the public health, to account for this remarkably low death rate. It must be attributed solely to the campaign of education against typhoid fever carried on during the last three months, which has led to greater attention being paid primarily to the prevention of that disease, but also, and quite as valuably, to the increased care of health generally caused thereby.

The number of deaths from typhoid fever, 22, was the same as in the previous week and as in the corresponding week last year, but the duration of the disease in the fatal cases shows that the epidemic is practically at an end and that the continuous pollution of the water supply has been offset by the precautions taken in its use. During August the average duration of the fatal cases was 18.5 days; in September it was 24.3 days; since October 1 it has been 31 days—one case being of 90 days, one of 74 days and more than half being of a duration which shows that the disease was contracted in July and August. Returns from various hospitals show 11 per cent. fewer cases under treatment at the close of the week than at the close of the previous week.

Sore throats have been occurring in various localities, and a large proportion of these are caused by the germs of diphtheria and influenza. The correct and early diagnosis of these infections can only be made by the microscope. The municipal laboratory offers the busy physician every aid in controlling these diseases early in the season. In malignant cases of diphtheria, when membrane can be sent in with the culture, an immediate examination and diagnosis can often be made. Such specimens should be sent in by special messenger and marked "urgent." A diagnosis will be returned to the physician by telephone at the earliest possible moment.

Thirteen cases of smallpox were sent to the isolation hospital during the week. Five other cases were found which had run their course under the supposition that they had chicken-pox. Some of these unrecognized cases attended the St. Alphonsius parochial school at Southport and Wellington avenues. All attacked were children ranging in age from 1 to 12 years, except one 23 years old. None had ever been vaccinated. A case of smallpox in a public school could not have resulted in such an outbreak, as these schools are well protected by vaccination. The parochial schools are not so thoroughly vaccinated, and their principals do not make a certificate of vaccination a requisite to school enrollment. Their practice is to admit all and some time during the year have the school vaccinated, but certificates in all cases are not exacted, as in the public schools, though the law requiring a certificate of vaccination applies to the parochial school the same as to the public school.

Had this law been complied with in the St. Alphonsius school at the beginning of the term the nine pupils from that school now

in the isolation hospital with smallpox would have escaped the disease.

The fourteen deaths reported from suicide again call attention to the appalling increase of self-destruction during the last decade. Since the first of the year there have been 321 suicides—an annual rate of 22.6 per 100,000 of population. The rate in 1890 was 12. In order of greatest increase of suicide ten cities rank as follows: St. Louis, Chicago, Hoboken, Oakland, Cal., New York, Milwaukee, Cincinnati, Newark, New Orleans and Brooklyn. The health department is confirmed, by its researches, in the belief that this increase of self-murder, like the corresponding increase of pneumonia during the period, is due to influenza, and again urges upon physicians the prompt diagnosis of this diabolical disease and its radical treatment.

INDIANA.—The total number of deaths reported to the State Board of Health for September was 2,312. Death rate, 13.6; the same rate as for the corresponding month last year. The number of deaths under one year of age was 536, or 20 per cent. of the total number; between one and five years of age the number of deaths was 288, or 10.7 per cent. of the total number. Deaths from pulmonary tuberculosis, 232; other forms of tuberculosis, 51; typhoid fever, 232; diphtheria, 34; scarlet fever, 7; whooping cough, 16; pneumonia, 112; diarrhœal diseases under five years of age, 322; cerebrospinal meningitis, 24; influenza, 6; puerperal septicemia, 17; cancer, 114; violence, 105; smallpox, 3. In comparing these figures with those of the same month last year, we find there is an increase in the rate for consumption of 8.8, for typhoid fever there is an increase of 21.6, and for pneumonia the increase is 18.9. Smallpox for the twentieth consecutive month was the most prevalent disease. There were 219 cases reported from thirty-nine counties with 3 deaths. In the corresponding month last year there were 80 cases reported with no deaths.

IOWA.—The legislature has changed the fiscal year of the State Board of Health from October 1st to July 1st. The fiscal year of all State Boards, Commissioners and officers begin on the same date. We will endeavor to have the annual meetings of the Board as now required in May and November changed to January and July. That will greatly simplify the financial records of the Board and have them uniform in date with the fiscal year of the State, generally. Then the quarterly financial statements of

the secretary would end with March, June, September and December instead of April, July, October and January—each calendar year carrying its own complete record.

Health Bulletin for October reports outbreaks of *diphtheria* in thirteen localities; *smallpox* in seven; *scarlet fever* in six; typhoid fever in seven; measles and whooping cough, of each, in one only.

LOUISIANA.—New Orleans, 305,000—81,500 colored. Report for September: Total deaths, 457—187 colored; 68 under 5 years—33 colored. Annual death rate, white, 14.49; colored, 27.53; 17.98 deaths from typhoid fever, 5 white, 6 colored; malarial cachexia, 4 white, 4 colored; tuberculosis of the lungs, white, 43; colored, 35; heart disease, 40—19 colored; Bright's disease, 41—15 colored; cancer, 26—15 colored.

New Sanitary Laws.—At the quarterly meeting of the State Board of Health the president, Dr. Edmond Souchon, New Orleans, presented the following summary of the recent legislation in the State regarding boards of health:

1. Vaccination shall not be made compulsory except in cases of children attending the public schools of a parish where smallpox prevails, and when the same shall have been recommended by a majority of the local board of health.

2. Any violation of any provision or provisions, or regulation or regulations of the sanitary code shall constitute a misdemeanor, and the offender shall be punished by a fine of twenty-five dollars or thirty days' imprisonment in the parish jail for each and every offense, on conviction before a court of competent jurisdiction.

3. The police jury of each parish shall immediately after the promulgation of this act, and hereafter not later than the third regular meeting of the new police jury term, elect and appoint a parish board of health to consist of three persons, said board to be composed of a duly licensed and registered physician, a resident of said parish, who shall be chairman of said board of health and health officer, and the two other members of said board shall be selected from the police jury of said parish.

4. The term of no parish board shall continue longer than that of the body by which it was appointed.

5. The chairman and health officer of a municipal board shall receive such an annual salary as the city council or legislative body of said municipality may fix and pay.

6. The persons appointed to constitute the city board of health shall serve during the term of the body by which it was elected.

MASSACHUSETTS.—Boston, 586,553. The report for July: Deaths, 863—339 under 5 years. Death rate, 17.65. Deaths from typhoid fever, 5; smallpox, 3; scarlatina, 6; whooping cough, 20; croup and diphtheria, 11; cerebrospinal meningitis, 10; erysipelas, 5; septicemia, 9; tubercle of the lungs, 93; other tubercular diseases, 15; heart disease, 72; acute nephritis, 28; Bright's disease, 11; cancer, 21. Contagious and infectious diseases reported: Cerebrospinal meningitis, 4; diphtheria and croup, 59; pulmonary and laryngeal tuberculosis, 82; measles, 100; scarlatina, 98; smallpox, 26; typhoid fever, 37.

MICHIGAN.—The Secretary of the State Board of Health reports for September, 1902, compared with the preceding month, bronchitis, influenza, typhoid fever, pneumonia, diphtheria and measles were more prevalent; and cholera morbus, scarlet fever and smallpox were less prevalent. Compared with the average for September in the ten years, 1892-1901, pneumonia, measles and smallpox were more than usually prevalent; and consumption, cholera morbus, cholera infantum, dysentery, intermittent fever, remittent fever and erysipelas were less than usually prevalent. The unusually cold and wet weather has apparently increased the rheumatism and decreased the sickness from diarrhœa.

The Most Dangerous Communicable Diseases.

Including reports by regular observers and others, meningitis was reported present at 7 places; whooping cough at 32 places; smallpox at 39 places; measles at 45 places; diphtheria at 52 places; scarlet fever at 103 places; typhoid fever at 169 places, and consumption at 231 places. Reports from all sources show meningitis at 6 places less; whooping cough at 7 places less; smallpox at 11 places less; measles at 11 places less; diphtheria at 11 places more; scarlet fever at 11 places more; typhoid fever at 21 places more, and consumption at 4 places more, in the month of September, 1902, than in the preceding month.

Deaths returned to the Department of State for the month of September, 2,548, corresponding to a death rate of 12.6 per 1,000 population. This rate is slightly higher than the rate for the preceding month, 11.8, but is lower than the rate for September, 1901, which was 14.1.

By ages there were 607 deaths of infants under 1 year; 219 deaths of children aged from 1 to 4 years, inclusive, and 662 deaths of elderly persons over 65 years of age.

Important causes of death were as follows: Tuberculosis of lungs, 162; other forms of tuberculosis, 26; typhoid fever, 80; diphtheria and croup, 48; scarlet fever, 17; measles, 4; whooping cough, 24; pneumonia, 119; diarrhœal diseases, under 2 years, 329; cancer, 114; accidents and violence, 152. Typhoid fever nearly doubled in mortality as compared with the preceding month, and diphtheria and pneumonia showed considerable amounts of increase. No deaths were reported from smallpox, the first month in which this has been true since April, 1901.

MINNESOTA.—Minneapolis, 240,000. Registry of deaths for August, 1902: Deaths, 188—65 under five years; death rate, 10.40. Deaths from typhoid fever, 8; tubercle of the lungs, 14; other forms of tuberculosis, 7; peritonitis, 5; diarrhœa under 2 years, 35; pneumonia and broncho-pneumonia, 4; diphtheria, 7; cancer, 11.

St. Paul, 170,000. Report for August, 1902: Deaths, 138—53 under five years; death rate, 9.73; deaths from diphtheria and croup, 5; typhoid fever, 2; "tuberculosis of the lungs, 9; tuberculosis, 9" (?); pneumonia, 9; cancer, 7.

MISSOURI.—St. Louis, 621,000—39,000 colored. Report for August, 1902. Deaths, 819—241 under five years. The annual death rate per 1,000 during the month was 14.94, this being based on a population of 621,000, computed on census figures of 1900 (575,200) at the rate of 4 per cent. annual increase. During the month there were 120 more deaths than the previous month. Forty-four certificates were issued for deaths occurring outside the city limits; these are not included in the monthly statement. Percentage of deaths in eleemosynary and other institutions of a public character to total mortality, 25.27. Percentage of deaths in city institutions to total mortality, 13.29. White population, 582,000; mortality rate per 1,000, 16.40. Colored population, 39,000. Deaths from diphtheria, 8; whooping cough, 14; scarlet fever, 7; cerebrospinal fever, 2; typhoid fever, 26; other fevers, 7; infantile diarrhœa, 64; diseases of the circulatory system, 59; Bright's disease and nephritis, 32; phthisis, 84; pneumonia, 30; bronchitis, 20; other diseases of the respiratory organs, 12; cancer, 24.

NEW JERSEY.—Hudson County (Jersey City and environs), 409,810. Report for August, 1902: Deaths, 603—295 under five years; death rate, 17.7; deaths from smallpox, 3; diphtheria and croup, 19; typhoid fever, 5; scarlet fever, 2; diarrhœal diseases, 63; all zymotic diseases, 107; consumption, 51; bronchitis, 10; pneumonia, 29.

Newark, 255,000. Report for the week ending October 11, 1902: Contagious and infectious diseases reported, 38, being the same as for the preceding week; deaths from contagious and infectious diseases, 20; typhoid fever, 2; diphtheria, 3; deaths from general diseases, 60; consumption, 8; cancer, 1; deaths from violence, accidents and suicides, 6; total number of deaths reported, 86; death rate, 17.53.

NORTH CAROLINA.—Bulletin of State Board reports for August, 1902: Twenty-six towns with an aggregate population of white, 81,450; colored, 57,500: 138,950. Aggregate deaths, 253—105 colored; 105 under five years; still born, 12; death rates, white, 16.6; colored, 29.2: 21.8.

Deaths from typhoid fever, 21; malarial fever, 11; consumption, 24; diarrhœal diseases, 50; smallpox reported in sixteen counties, an aggregate of 136 cases, no deaths.

OHIO.—Cleveland, 400,000. Reports for August, 1902: Total deaths, 569—246 under five years of age. Annual death rate, 17.07. Deaths from consumption, 34; pneumonia, 31; broncho-pneumonia, 4; typhoid fever, 9; smallpox, 34; diphtheria and croup, 11; whooping cough, 7; diarrhœa, 99—86 under 2 years; cancer, 18.

Sympathy with the Health Officers.

The Cleveland "Medical Journal," for October, refers to Health Officer Friedrich's task as a most arduous one, and the more for his "having wasted both time and money last year upon formaldehyde that should have been sedulously devoted to vaccination," because he now has to contend against the *bigpox* votaries; "the Mayor, who does not believe in the efficacy of vaccination and who advises his acquaintances not to be vaccinated; certain portions of the city's population refusing vaccination and other portions too ignorant to be reasoned with while secure in their faith that force cannot be employed; quarantine guards who allow all the people of a neighborhood to come and go at their will to and

from infected houses; the manifest difficulties of caring for a pest-house containing 100 to 200 patients; parents and physicians (!) who strenuously object to the new vaccination rules of the School Council that were initiated by the Committee on Public Health of the Academy of Medicine; preachers who weekly harangue their congregations in opposition to vaccination; agents and partisans of the vaccine manufacturers demanding that he buy this or that make of vaccine, and with the omnipresent specter of charges of extravagant expenditure facing him," as the common result of neglected smallpox known to all practical observers for the last one hundred years. Yet, as the "Journal" concludes, "the lot of our health officer certainly is not an easy one" under his self-willed conviction of the fallacy of his primary efforts and the plaudits of the anti-vaccinationists that, however inestimable the benefits of cleanliness and the efficacy of disinfectants against the introduction and the retention of infectious diseases generally, *vaccination* and vaccination *only* can be depended upon for the prevention of smallpox.

PENNSYLVANIA.—Philadelphia, 1,293,697. Report for week ended October 11, 1902: Deaths, 352—91 under five years. Deaths from consumption, 47; cholera infantum, 3; typhoid fever, 9; diphtheria and croup, 7; cancer, 10.

Pittsburg, 346,000. Report of the Bureau of Health for week ended October 11, 1902: Deaths, 124—43 under five years. From diphtheria and croup, 7; typhoid fever, 11; smallpox, 2; pneumonia, 12; consumption, 10; cancer, 3.

Cases of infectious diseases reported: Smallpox, 17; diphtheria and croup, 26; scarlet fever, 10; typhoid fever, 38.

TENNESSEE.—Memphis, 120,000—54,000 colored. Report of deaths for August, 214—128 colored; under five years, 18—14 colored. Annual rates per 1,000, white, 15.63; colored, 28.44: 21.36. Deaths from typhoid fever, 4; fever, intermittent, and malarial cachexia, 33—25 colored; consumption, 16—all colored; diarrhœal diseases, 25; cancer, 4.

VIRGINIA.—*Prohibition on Infected Persons.*—Chapter 421 of the Laws of Virginia of 1902 provides, under penalty, that it shall be unlawful for any person who knows himself to be infected with any dangerous, contagious, or infectious disease, or who has recently had such disease, and has not cleansed his person and

clothes so as to be free from the infection: First, to go into the company of any one who is liable to take the infection without warning such person of his being so infected. Second, to go into any church or other house used for public worship or for school purposes, or to go into any mine, mill, factory, shop, store, warehouse, depot, train, ship, hotel, restaurant or dwelling belonging to any other person, or to go into any courthouse, jail, asylum or almshouse, or to go into any like house, place or building. Third, that it shall be unlawful for any person who has been voluntarily exposed to smallpox or any other dangerous, contagious, or infectious disease to come into this State, or to go from place to place therein, within a period of fifteen days from such exposure, unless such person shall have a certificate from a competent and reputable practicing physician stating that no danger of communication of disease by such exposed person exists. When the State Board of Health or the county or city boards of health have established quarantine lines or ordered compulsory vaccination in any infected boundary, it shall be unlawful for any person to violate either of said regulations, or to aid or encourage another to violate either. But this act shall not apply to practicing physicians or undertakers when in the discharge of the duties of their respective professions or callings.

WISCONSIN.—Milwaukee, 300,000. Report for September: Deaths, 330—138 under five years. Annual death rate 13.42. Deaths from typhoid fever, 5; whooping cough, 8; diphtheria and croup, 6; pulmonary tuberculosis, 16; other articular diseases, 6; cancer, 21. Infectious diseases reported: Smallpox, 3; tuberculosis, 6; diphtheria, 28; scarlet fever, 9; typhoid fever, 34.

CUBA.—Havana, 275,000—73,000 colored. Carlos J. Finlay, M. D., Sanitary Chief, reports the total mortality for August, 533; death rate, 22.81, showing a decrease of 51 deaths as compared with previous month. This decrease embraces almost every group of diseases which are amenable to sanitary improvements.

"Havana and, so far as we have been able to ascertain, the rest of the Island have continued free from yellow fever and from smallpox, though a fatal case of the former disease came on the SS. Vigilancia, from Veracruz on the 4th of August and died at Las Animas Hospital on the 7th. The success which has so far attended our efforts to prevent the propagation of the disease during the conveyance of patients from vessels in the harbor or from

Immigration Camp at Triscornia to Las Animas Hospital, as well as during their detention at that hospital, in this season of the year, is not only highly satisfactory to us as showing that our vigilance has not abated since the inauguration of the Cuban Republic, but also as an additional demonstration of the fact that in order to attain that result all that is needed is to guard the patient from being bitten by mosquitoes."

CHOLERA IN THE PHILIPPINES.

Under date of September 3, the "New York Medical Journal" of October 18 says: Our Manila correspondent writes that after almost six months the epidemic is more firmly rooted than ever before, appearing in practically every town and pueblo from the northern extremity of Luzon to the island of Mindanao, with a virulence previously unknown. The rainy season, he says, has utterly failed to influence the course of the scourge, and "we are now looking to the colder weather of November and December for relief, in the meantime continuing such quarantine measures as will lead to the protection of home ports." In Manila, he adds, about two per cent. of all American civilians have been attacked, and fifty-five per cent. of those affected have died. This is in addition to the number of soldiers stricken. The following are the statistics furnished by the Commissioner of Public Health up to the date of our correspondent's communication:

FOR MANILA.

	Cases.	*Deaths.*
Filipinos	3,350	2,654
Chinese	292	140
Americans	117	64
Europeans	53	31
Others	29	14
Total	3,841	2,903
Provinces	29,613	20,140
Grand total	33,454	23,043

The total mortality has been sixty-nine per cent.

Telegraphic—Manila, Oct. 26.—The cholera is gaining a strong foothold on the Island of Mindanao. It is expected to spread there, as it has elsewhere in the islands. The disease continues to

be bad in the Province of Iloilo, Island of Panay, but it is light elsewhere. It has disappeared from Manila. The cases reported up to date exceed 100,000.

PLAGUE IN LONDON.

The Medical Officer for the Port of London (Dr. H. Williams), in a report on the work of port sanitation, gives some interesting particulars concerning the case of plague which was discovered on board a steamer which recently arrived from France. The vessel has, since her arrival, been lying below Gravesend, where the cargo has been discharged into lighters by men clothed in overalls. About 200 dead rats were found in the ship, and these were picked up with tongs and put into a solution of corrosive sublimate and burnt in the furnace. The lascar who was attacked by the plague died at the Port Sanitary Hospital. The vessel did not come to London in the ordinary way, but it was practically the only way in which she could discharge her cargo and be adequately disinfected. The extermination of rats at the docks continues without cessation, over 160,000 having been destroyed since the crusade against them began. The Medical Officer alleges a deliberate breach of the regulations of the Local Government Board against the captain of a steamer which recently arrived from Calcutta. He reported that there had been no sickness during the voyage, and further stated that no plague or case of suspected plague had occurred. It was found, however, that a case of actual or suspected plague was landed from the vessel at Suez, where the ship was detained for twenty-four hours, while the necessary disinfection was being carried out. The doctor recommends that legal proceedings should be taken against the master on his return. The prejudice which is still manifested by many people against vaccination is illustrated in an instance where, in consequence of some contact with a small-pox patient, the crew of a tug were offered vaccination, the owner consenting not only to pay a private doctor for doing it, but also to pay the wages of any man off duty from the effects. But, in spite of this, the men refused to be vaccinated. Large quantities of tinned and other foods have been seized and condemned, including 56 tons of sugar, and 646 mats of dates, in addition to extensive seizures of meat, sardines, hams and fruits.—"Sanitary Record," October 9, 1902.

BOOK REVIEWS.

THE MEDICAL DIRECTORY OF NEW YORK, NEW JERSEY AND CONNECTICUT.—Published by the New York State Medical Association, 64 Madison Avenue, New York. Vol. 12, 1902-1903. A compact 12mo volume of nearly 1,000 pages, containing the names and addresses of 13,364 physicians, of which 10,606 are in the State of New York, 1,655 in New Jersey, and 1,103 in Connecticut. Of the 10,606 in the State of New York, 3,948 are credited to the Boroughs of Manhattan and Bronx, 1,323 to the Borough of Brooklyn, 115 to the Borough of Queens, and 58 to the Borough of Richmond, a total for the Greater New York of 5,444, which leaves the number of physicians residing in the rest of the State, 5,162. It also comprehends lists of the Medical Societies, Hospitals, Dispensaries, Benevolent and other Institutions, and many advertisements of interest to physicians, all arranged and gotten up altogether in a style admirably calculated to promote the greatest possible facility of use, and especially to all physicians who would know the whereabouts and engagements of their fellows.

DISINFECTION AND DISINFECTANTS: A PRACTICAL GUIDE FOR SANITARIANS, HEALTH AND QUARANTINE OFFICERS.—By M. J. ROSENAU, M. D., Passed Assistant Surgeon, United States Public Health and Marine Hospital Service; Director of the Hygienic Laboratory, Washington, D. C. 12mo, pp. 335. Illustrated. price $2 net. Philadelphia: P. BLAKISTON'S SON & CO.

A practical manual, comprising the gist of knowledge of infectious diseases, infectible conditions, disinfecting apparatus, disinfectants, and how to use them.

It is singularly direct in the description of all the subjects at issue, devoid of redundancy and without any waste of space on useless material or futile matters. The illustrations are excellent and the book altogether commendable for its lucidity and practical utility.

A GUIDE TO THE PRACTICAL EXAMINATION OF URINE FOR THE USE OF PHYSICIANS AND STUDENTS.—By JAMES TYSON, M. D., Professor of Medicine in the University of Pennsylvania, and Physician to the Hospital of the University; Physician to the Phila-

delphia Hospital; Fellow of the College of Physicians of Philadelphia, etc., etc. *Tenth Edition.* Revised and Corrected. With a Colored Plate and Wood Engravings. 12mo, 300 pages, Price $1.50 net. Philadelphia: P. BLAKISTON'S SON & Co.

With some pruning from previous edition and the addition of a considerable amount of new matter to keep apace with progressive knowledge of the subject, this—the tenth—edition of a manual already well known to the profession is well calculated to maintain the reputation it has already gained for superior excellence.

PROGRESSIVE MEDICINE, VOLUME III., SEPTEMBER, 1902, covers the Diseases of the Thorax and its Viscera, including the Heart, Lungs and Blood-vessels. By WILLIAM EWART, of London.

It deals with a group of diseases that the physician meets constantly in his daily practice. To him a thorough knowledge of the latest advances in connection therewith is an absolute necessity, and here it is to his hand, gleaned, condensed and in such form as cannot fail of appreciation.

Dermatology and Syphilis are treated by William S. Gottheil, Professor of Dermatology and Syphilography in the New York School of Clinical Medicine. Diseases of the Nervous System, by William G. Spiller, of the University of Pennsylvania. Obstetrics, covering Pregnancy, the Management of Labor, Obstetrical Surgery, Tumors Complicating Pregnancy, Labor Obstructed by Pelvic Deformity, Placenta Previa, Postpartum Hemorrhage, the management of Puerperium and the care of the Newborn Infant, by Richard C. Norris, of the University of Pennsylvania. In short, this volume will be found to contain all that is new on the subject which it covers.

Octavo, handsomely bound in cloth, 421 pages, 26 illustrations. Per volume, $2.50, by express prepaid to address. Per annum, in four cloth-bound volumes, $10.00. LEA BROTHERS & Co., Publishers, Philadelphia and New York.

STATE MEDICINE IN ALABAMA: TRANSACTIONS OF TECHNICAL ASSOCIATION OF THE STATE OF ALABAMA (THE STATE BOARD OF HEALTH), 1902. 8vo, 488 pages. G. P. WALLER, M. D., Secretary, Montgomery.

"Medical and Sanitary Dissertations and Reports" begin with "The Annual Oration," by Edward Burton Ward, M. D., of Salina. "On the Philosophy of Sleep," a lucid description of the conditions promotive of its most salutary enjoyment. "What

Precautions Should be Taken to Prevent the Spreading Infectious Diseases," by Dr. Glenn Andrews, of Montgomery, briefly considers ancient efforts and gives a concise statement of effective methods, based on knowledge of the conditions promotive of the spread of such diseases. "Medicine and Surgery of the Future from the Standpoint of Sanitation and Prevention," by T. Joseph Dean, of Union Springs, lays particular emphasis on recent efforts for the prevention of tuberculosis, thinks it "can and should disappear from civilized countries; and it falls upon the medical men of the twentieth century to establish methods and plans as will best accomplish this purpose." Of venereal diseases, excesses and intemperance, he thinks that "while the social reformer and the clergyman may do their grand work for reformation along this line . . the family physician has to do the bulk of the work . . the task falls on the medical profession. We should make a strong plea in favor of continence, and tell our young men that while the sexual passion is very strong it can be accelerated or delayed, excited or lowered, by the influence of the mind. 'To be a true doctor, to attain the highest ideal of all, he must not only be a healer, but a teacher as well.'" "Recent Progress in our Knowledge of Malaria," by Stephen C. Henderson, M. D., of Brewton, is concisely rehearsed and urged. "Lobar Pneumonia, with special reference to Treatment," by W. George Harrison, M. D., of Talladega. "The writer believes our best work in the handling of this disease is along the line of prevention." That "while true croupous pneumonia is always an infection by the diplococcus of Fraenkel, and is often associated with the streptococci and the bacillus of Pfeiffer, yet all pathologists agree that any germ must find a soil favorable for its growth before serious infection can occur. By toning up the resisting power of every organ, by increasing the vital capacity, we overcome the tendency toward infection." "The Relation of the State to Tuberculosis," by Edgar Allen Jones, M. D., of Birmingham, sums up and urges co-operation with the efforts now in progress in all intelligent communities for the prevention of tuberculosis; the need of a separate State prison for consumptive convicts, and the establishment and maintenance of State sanitation for the proper care of needy consumptives. In the discussion of the paper, Dr. Seale Harris cites statistics for the past seven years, showing that in Bullock County, the "black belt," where there are 27,000 blacks to 5,500 whites, between one-fifth and one-sixth of all the deaths among the negroes are caused by tuberculosis, and that the prevalence of the

disease among them is rapidly increasing. "Infant Mortality in Alabama," by Thomas D. Parke, M. D., cites the statistics of 51,809 deaths returned to the State Health Officer for the six years, 1888 to 1893 inclusive, of which, exclusive of 768 premature births, 11,273 were under two years of age—22 per cent. of the total mortality. He attributes this excessive mortality of infants in the State to improper feeding, the extensive use of proprietary foods instead of cow's milk, when insufficiently nourished by mother's milk, and the excessive use of drugs. "Proper Methods of Care and Treatment of the Feeble-Minded of the State of Alabama," by Dr. C. T. Wilbur, of Kalamazoo, Mich. "According to the census of 1900, there were in the State of Alabama 2,187 persons classified as feeble-minded. The ratio of feeble-minded persons to each 100,000 of the population was 144.8. The ratio in the United States was 152.7 to each 100,000 population. . . As you have no State asylum for this class of persons, they must be kept in private homes, county poorhouses, or in insane asylums." After a brief history of the efforts in this country to ameliorate the condition of the feeble-minded, since "July, 1848, when Dr. H. B. Wilbur opened a private school for them in the village of Barre, Mass., the first school for idiots that was established in the United States and upon this Continent," the paper proceeds with a description of the special needs and requirements of State care for the feeble-minded, how State institutions should be organized and conducted, and the beneficial results generally and particularly illustrated by his own many years' experience, as proprietor of the Wilbur Home for Feeble-Minded, at Kalamazoo.

There are besides about thirty other papers and reports, with discussions, on subjects of interest to all physicians.

THE PHYSICIAN'S VISITING LIST FOR 1903 (LINDSAY AND BLAKISTON). *Fifty-second year* of its publication. Price $1.00. P. BLAKISTON'S SON & Co., Philadelphia.

This list continues to maintain its excellence. It comprehends memoranda of nearly everything the busy physician needs in his daily round—e. g., Incompatibles, Dose Tables, Metric System and Record. Thousands of physicians throughout the country have already learned that they cannot do without it, as all others, to whom we commend it, will learn on acquaintance with it.

CONTEMPORARY LITERATURE.

"The Century" for October has for its frontispiece the full-length portrait of Andrew Carnegie recently painted by John W. Alexander, and Mr. Carnegie is the subject of an appreciation by Hamilton W. Mabie. "The Century" continues to minister to the general interest in New York this month by two articles on the Subway—one of a picturesque character by Arthur Ruhl, illustrated by Lungren and Vanderhoof, and the other "Difficult Engineering in the Subway," by Frank W. Skinner, of the "Engineering Record." Two papers are devoted to the subject—novel in magazine literature—of John Alexander Dowie, Dr. James M. Buckley, well known for his study of similar subjects, writing under the title of "Dowie, Analyzed and Classified," and John Swain contributing a descriptive study at first hand of "the modern Elijah," entitled "The Prophet and His Profits." Both are illustrated by drawings by F. De Forrest Schook, made at Zion City, Ill., the present seat of the Dowieites. Mr. Swain's article bears on its face the evidence of authenticity, but, at the same time, it presents, with much anecdote and incident, his own point of view of Dowie's character and pretensions. The true story of a remarkable deception is told by Ambassador Andrew D. White in a paper on "The Cardiff Giant," the supposed antique figure which, thirty years ago, caused so much commotion in Central New York and elsewhere, and in which Mr. White at the time had a sceptical interest.

THE CURATIVE PROPERTIES OF LIGHT.

Some six years ago the medical world watched with considerable curiosity the experiments of a young Danish physician, whose theories anent a "light cure" held out great promises. Since then the experimental stages have broadened until they include the realm of practicability. To-day no name in the scientific catalogue is better known than that of Prof. Niels R. Finsen, of Copenhagen. Since the discoveries of Pasteur, the Roentgen rays are, perhaps, the most wonderful addenda to the history of medicine. But while the latter may be termed the search lights of the modern surgeon and his class, in the particular field he has selected Professor Finsen stands absolutely alone.

The aim of Professor Finsen and the Finsen Medical Light Institute is the conquest of superficially seated consumption and

cancer through the medium of both natural and artificial light. Many skin diseases yield to the methods employed by the eminent discoverer. From a purely æsthetic standpoint, therefore, the light cure becomes a distinct boon to mankind.

His researches and methods have opened up a territory almost unknown until Professor Finsen led the way, not ten years ago. Professor Widmark, of Stockholm, it is true, was the first to prove conclusively that sunburn is caused, not by heat rays, but through certain chemical rays contained in the light. Finsen himself does not hesitate to admit the validity of the other's priority. But still to the Danish physician is due the knowledge that such and such rays in the sun's spectrum are bacteria-destroying, while others are of a healing and curative nature.

Working on this principle, bringing to his aid the electric current, experimenting constantly, ill, yet subjecting himself to personal tests in order to be certain, Professor Finsen stood ready finally to let others judge him by his performances. The highest medical authorities in Europe and the United States have visited the Finsen Medical Light Institute at Copenhagen, and as a result of their approval almost every large city in the world is making ready to establish a plant for the treatment of such diseases as yield to the Finsen concentrated light.—From "The 'Light Cure' at Copenhagen," by Julius Moritzen, in the "American Monthly Review of Reviews" for October.

ALEXANDER HAMILTON.

Perhaps the most interesting character in the story of the American Revolution is Alexander Hamilton. A study of the man, his characteristics and guiding motives, was prepared by John Fiske before his death, and appears as the leading article in the October "Cosmopolitan." No paper could illustrate more clearly the difficulties through which the American Union had to pass on its way to the excellence already attained and the perfection which it must ultimately reach.—There was a king once who upbraided his courtiers for paying excessive attention to ceremony. "Your Majesty," replied a courtier, "forgets that you yourself are only a ceremony." This is practically the text of the article which W. T. Stead contributes on the real significance of the Coronation. Mr. Stead throws an interesting light on the King's habits of life and mental attitude toward his subjects and compares the state of democracy in Great Britain with the democracy of the United States. Even those who do not altogether agree with Mr. Stead's

conclusions always find him interesting as a writer, and "The Coronation and Its Significance" is no exception to the rule.

THE UNSPEAKABLE TURK.

Mr. Ray Stannard Baker, the well-known magazinist, has lately contributed to "The Outlook" two articles on conditions in Turkey as seen by a trained observer. The following is his description of the state of affairs in the Turkish post-office, and of Turkish backwardness generally:

The Turk suspects everybody and everything, and no private act, no seclusion, is safe from his intrusion. Every telegram sent from the public offices is at once reported to the authorities. No one can safely send a letter by the Turkish post unless he is willing to have it opened and read, and take the chances of having it confiscated if the censor finds anything that can be twisted into an insult to Mohammedanism. As a result of this condition and the inability of the foreigners residing in Turkey to communicate with any certainty with their friends, some of the great European nations have established post-offices of their own in Turkish cities, in which they employ only Europeans, use their own stamps, and watch their mail-bags until they pass beyond the prying eyes of the Turks. In Salonica there are no fewer than five post-offices—British, Austrian, French, Servian and Turkish; in Constantinople, six. If one wishes to be sure of his mail, he must inquire at four of them at least; and if he really wants to have his letters reach their destination, he must send them through some post-office other than Turkish. For the reason that the authorities cannot be sure of a complete knowledge of all the conversation that might pass, the telephone has been excluded from the Empire; and no Turkish city is electrically lighted because, it is said, the officials discovered the word dynamo in the applications for the necessary contracts, and, dynamo suggesting dynamite, the official Turk was paralyzed with fear! So all Turkey is still candle-lighted, or at best lamp-lighted. Whatever is Turkish in Turkey is sure to be out of order, disorganized, dirty; whatever is foreign is, by contrast, well kept.

INTERESTING COCOONS IN A QUEER PLACE.

DORCHESTER, Mass.

Dear St. Nicholas.—I want to tell you what I found this summer. I am very much interested in butterflies and insects, and as I was watching some beetles, I found, on a grape-leaf, a large

green caterpillar. His back was completely covered with very small white cocoons. On closer examination I found that each cocoon had a tiny cover. I took the caterpillar into the house and put him in a dish with a few grape-leaves. I kept him for several days. Each day he seemed to grow weaker and thinner. About the forenoon of the fifth day, suddenly, and almost at the same time, the covers of each cocoon flew up, and a tiny black fly was seen struggling to get free from each one. When they were free from the cases they flew away, and the cocoons were left empty and with the covers up. By this time the caterpillar had died. I learned afterward that the adult fly had laid the eggs in the caterpillar's back and they had hatched there. Then they spin these cocoons and live in them until they are fully formed flies. From your interested reader, ROMAINE HOIT.

The white cocoons on the caterpillar are those of the *Microgaster* fly. This fly lays its eggs within the body of the caterpillar, on which the larvæ feed. Just at the end of the larval existence they come out and spin these cocoons, from which later a tiny fly escapes by the opening of a little lid at the top. Examine these cocoons with aid of a pocket-microscope and you will find that they are very beautiful objects.

Many young folks have sent me a large number of these tiny cocoons, and I have *Microgaster* flies hatching in my laboratory by thousands. It is very interesting to see the little prisoners escape from the miniature silky urn-shaped cocoons.—From Nature and Science Department in the October "St. Nicholas."

EDUCATION IN THE SOUTHERN STATES.

In a report of the recent Southern Education Conference, published in "The Southern Workman," Hon. Hoke Smith, of Atlanta, is quoted as follows: "Our rural school question is fraught with serious difficulties, chief of which is the sparseness of the population. In Massachusetts there are sixty-five children to a square mile. In Georgia there are eleven—six white, five black! Ninety-five per cent. of the taxes paid by the whites goes for the education of the blacks. I mention this simply to show some degree of justice and intelligence on our part. Are we so blind as to be willing to leave one-half of our population in ignorance and immorality? We brought the negroes here and they are not going away. We don't want them to go away. As intelligence and Christian character pervade our people they will grow unani-

mous in favor of educating the black children. But it is impossible to have a proper school system until we have an eight-months' school in every county. We need better schools, better paid teachers and better roads. This has become such an important question that I would not vote for any man for public office until I had first found out how he stood on the school question."

THE CANARY ISLANDS.

U. S. Consul Berliner, Teneriffe, in a report (May 30, 1902) on the commercial advantages of the Canaries, says with regard to the climate: "For many diseases, especially those of lung and throat, the climate of these islands is unequaled, and they are steadily growing in popularity as a health resort; nowhere can the open-air treatment, so much in vogue for tuberculosis, be better practiced.

"There are a number of good hotels and a fast service of steamers between the different islands, which are visited by 3,000 to 4,000 strangers—mostly English—every winter. Many Americans would doubtless avail themselves of the opportunity to come to these islands for business, health, and pleasure, and would bring extra revenue to a steamship company."

NEWS FROM PROCTOR'S.

The advancing season brings increased crowds to the popular Proctor's theatres in New York, and business in Newark, Albany and Montreal is likewise of a highly satisfactory character. The policy of presenting refined vaudeville between acts continues to be most popular with the theatre-going public.

The Fifth Avenue Stock Co. is admittedly the highest salaried and most artistic stock organization in America. Minnie Seligman and James Wilson have won immediate favor as the leading members of the excellent organization, and the subordinate members have been chosen from the most popular favorites of the Proctor Stock Co.

The Twenty-third Street continues as the old vaudeville standby of the Proctor Circuit. The best acts in the American and European market are here first presented, and the continuous bill is always long, strong and diversified. Vaudeville is also presented at Proctor's, Newark, where daily bargain matinees are featured—25 cents admitting to any seat in the house. The Proctor Stock Co. has possession at Montreal and Albany, presenting the best comedies and dramas in conformity with the Proctor plan.

SANITARY SCIENCE.

A SYNOPSIS OF SANITARY SCIENCE AS REPRESENTED IN THE SANITARIAN, ALPHABETICALLY.*

By The Editor.

Infant Mortality in London, iii, 272.

Infant Mortality, with Suggestions for Improving the Condition of Foundlings, Abr. Jacobi, *et al.*, i, 18.

Infantile Life Insurance in Europe, Chancellor, xxxvi, 116.

Infants, Vital Statistics of, Bryn, xliv, 409.

Infected Material, The Danger of, xxxvii, 339.

Infection, Channels for Conveying to Households, R. Thorne Thorne, xi, 385, 435, 483, 502; Milk as a Vehicle of, Dougall, *et al.*, xii, 105; The Nail Brush, a Source of, xxii, 377; by Books, Winslow Anderson, xxii, 543; xxxvi, 210; External Sources of, in Their Bearings on Preventive Medicine, Welch, xxiii, 106; The Evolution of, Holmes, xxv, 24; in the Toilet, Engman, xlii, 111.

Infection of the Right Kind, xxxviii, 155.

Infectious Diseases, Immunity Conferred by Attack of, Maiselis, xxxv, 68; Causes of, Huppe, xl, 478; Peter Bryce, Benj. Lee, *et al.*, xli, 419; Transmission of, by Atmosphere, xli, 15; xlii, 85; Causes and Prevention, Bryce, xliii, 519; Report on, Suitor, xlv, 495.

Infectious Disease-proof Costume, xi, 184.

Infectious Diseases, Curability of and Immunity from, xxvi, 211.

Infectious Disease, The Danger Limit of, xxv, 154.

Infectious Diseases, Hospitals for, xiv, 60; xxxii, 212.

Infectious Diseases in the Public Schools, Moreau Morris, xxxiv, 497.

Infectious Diseases and Mortality Statistics, xxvi, 23-561; xxvii, 70-563.

Infectious Diseases, What Is the Explanation of Acquired Immunity from? Sternberg, xv, 312; Causes of Acquired Immunity, Law, xvi, 97; Abroad, xvii, 93, 179, 283, 368; xx, 473, 560; xxi, 87; xxiii, 170; xxvii, 268; An Act to Prevent the Spread of (New York), xvii, 63. Interstate Notification of,

* Continued from previous number.

Hewitt, 343, 438; xxvii, 547; Metropolitan Defense Against, Seton, xix, 209; Prevention of, xxi, 566; and Quarantine, xxii, 146; Recovery and Immunity, Hanan, xxii, 120.
Infection of Meat and Milk, Vaughan, xxvii, 455.
Infectious Udder, Diseases of the Cow in Relation to Epidemic Diseases in the Human Subject, Klein, *et al.*, xxvii, 454.
Influence of Civilization on the Duration of Life, C. T. Lewis, v, 193.
Influence of Ground-water Movement on Health, Baldwin Latham, vi, 8.
Influence of Inebriety on the Public Health, Crothers, xxxiv, 35.
Influence of the Temperature of Liquid Air on Bacteria, xliv, 543.
Influence of Altitude on Health, ii, 47.
Influenza, Epidemic, xxiv, 75; xxv, 267; xxxi, 149; Immunity from, by Vaccination, xxvi, 539; Epidemiology of, xxvii, 433; xxviii, 252, 384; Rappin, xli, 350; xlii, 158; in New England, xlii, 157; Meteorological Conditions in Relation to, Anders, xliii, 32; as a Factor in Recent Mortality in Chicago, xlvi, 489.
Ingram, James, Waste and Soil Pipes, iii, 125.
Inhaler, Denison's, xxxii, 564.
Inheritance of Deformities, i, 445.
Ink, Evanescent, xxx, 413.
Iniquities, The, of the Third and Fourth Generation? Who Is Responsible for, Reed, xvi, 411.
Ingalls, E. F., Presidential Address, A. C. Association, xxxix, 17.
Injections into Erectile Tumors, Auger, xli, 242.
Inoculation, Lady Montagu's, xxxiii, 187.
Inoculation for Prevention of Cattle Diseases, xi, 249; Yellow Fever, xvii, 95, Cholera, 142; Prevention of Rabies, Pasteurism, xxiii, 325; Practical Value of, Roux, xxvii, 449.
Inoculation for Diphtheria and Croup, Chancellor, xxxiv, 11.
Insane, Bromidia in the Treatment of the, Ross, xxxv, 73.
Insane, The Care of, Andrews, xix, 252, The Disposal of, 289.
Insane, The Care of in New York, Stephen Smith, xviii, 336; xxxii, 196; The Chronic, Care of, in Ohio, Darby, xviii, 269; Proportion of, to Population in the United States, xxi, 466; Regulations Concerning the Transfer of, xxv, 312.
Insane, The Treatment of, in France, Beecher, xxxix, 335; in Belgium, xliii, 57.
Insane Asylum, Told in a Nutshell, xxxiii, 90.

Insanity, Increase of, in New York, xviii, 565; xliv, 157.
Insanity, Causes of, Dr. Clouston, iv, 252.
Insanity in the United States, v, 20, Plea of, A. L. Carroll, 258.
Insanity, Feigned, and How It Worked, xxxix, 344.
Insanity, The Prevention of, Allen, xi, 353.
Insanity, If You Fear, xl, 83; How to Avoid, Buckley, xlv, 188.
Insanity and Idiocy, i, 361.
Insanity and Phthisis, The Relation Between, Irwell, xxxviii, 321.
Insanity in Switzerland, Frankenthal, xlii, 433.
Insanity's Debt to Medical Science, xlii, 188.
Insanity as a Defense for Crime, Corkhill, xi, 305.
Insanity, A Perverted Will as a Factor in, Hitchcock, xii, 381; Prevention and Cure of, xlvii, 411.
Insect Friends and Enemies, Howard, xlvi, 398.
Insecticide, An, Lune, xlvii, 350.
Insects, Noxious, xxiii, 16.
Insect, A Perfume, xxv, 47.
Insects and Flower-pots, xiv, 65.
Insects as Disseminators of Disease, Stiles, xlvii, 3.
Insomnia, Bauduy, xiii, 446, 541; and Its Therapeutics, xxv, 566; xxxi, 345; xxxiv, 197, 437; Hydrotherapy in, Hance, xliii, 25; Due to Neurasthenia, xliii, 535; The Warm Bath in, Eccles, xxxv, 147; in Gastro-intestinal Disorders, xxxvi, 342; Neurasthenic, Dornbluth, xxxviii, 351; Salucci, xl, 46.
Inspection Better than Analysis, xxxix, 63; Hutchins, xlii, 67.
Inspection of All Vessels, The Need of, vii, 423.
Inspection of Markets and Abattoirs, vii, 33.
Inspection of School-children's Eyes, Reed, xxxiv, 202.
Inspection of Steamboats and Other Vessels, A. N. Bell, viii, 102.
Inspectors, Official, Women as, xxxii, 437; xliii, 70.
Institute of Heredity, viii, 428.
Institutions, Charity, of Paris, xxii, 323; of London, Sanitary Condition, Improvement of, xxii, 230.
Instruments, To Clean, vii, 36.
Insurance, Health and Accident, Combined, xlii, 447.
Insurance, Life, Sanitation and, xlv, 345.
Insurrection, Cuban, A Résumé of the Last, xlii, 286.
Insured Children, Death Rate of, xxxvi, 121.
Insured, The Vital Statistics, xxxviii, 473.
Intellectual Detachment, xxxv, 188.
Intemperance and How It Should be Treated, xi, 125; xii, 373.

Intemperance and Crime, xxxv, 108.
Intercranial Resection, San Martin, xlvii, 449.
International Health Congress, Billings, xiv, 180.
International Congress of Charities and Correction, xxx, 572.
International Congresses of Hygiene, xxv, 555; xxvii, 280, 334, 447, 531; xxxi, 431; xxxii, 384, 470; xl, 383, 543; xlv, 289.
International Conference for Prophylaxis of Syphilis, xliii, 268.
International Health Exhibition, xii, 275; xxxvi, 383; xl, 543.
International Medical Congresses, iv, 95; vi, 379; Committee on, xiv, 556; xvi, 79; xvii, 250; xxiii, 138; xxiv, 474; xxv, 288; xxvii, 192; xxxi, 186, 288; xxxii, 188, 288; xliv, 96.
International Sanitary Conferences, viii, 427 (Call for, at Washington), 498; xii, 421, 522; xxix, 269; xxxii, 288; xl, 536.
International Sanitary Regulations, xlvii, 530.
Intestinal Antisepsis, xx, 355.
Intestinal Catarrh, Escheric, xxxvi, 438.
Intestinal Occlusions, xxii, 471; Treatment of, xxviii, 65.
Intestinal Perforations, Lejars, xlvi, 244.
Introduction of Public Rain Baths in America, Fisk, xxxvi, 481.
Intubation of the Larynx, Robert, xxxviii, 60.
Inunction and Manipulation, E. C. Angell, vi, 481; H. G. Naggs, vii, 122.
Instructions for Disinfection, vii, 456.
Insurance, Health, Woods, Hutchinson, xviii, 3.
Insurance, Life, in Various Countries, xi, 56.
Insurance Without Medical Examination, xxvii, 123.
Inundations in Louisiana, Their Influence on Health, Chaillé, xi, 357.
Invalid, American Aid Society, xxxii, 224.
Invalids, viii, 138.
Intervention of Physicians in Education, E. Sequin, vi, 450.
Intestines, Traumatic Perforation of, Treatment of, xxv, 187.
Intoxicating Liquors, Report of Medico-Legal Society Committee on, vi, 216.
Intoxicating Liquors, The Death Rate and, xxiii, 38.
Intoxication, xxii, 359; and Crime, Motet, xxix, 234.
Iodides of Potassium and Sodium, Effects on the Heart, xxix, 155.
Iodine, Action of, on Staphylococcus, xxi, 430.
Iodine, Elimination of, Bourget, xlv, 335.
Iodine for Syphilis, Martin, xxxix, 258.
Iodia in Syphilis, W. F. Glenn, xli, 42.

Iodole, xxiv, 287.
Iquique, Cook, xxx, 243.
Ireland, Register General's Report, xxxi, 400.
Irrigation, The Civilizing Power of, xxxviii, 60.
Irwell, L., Racial Deterioration, The Relation Between Phthisis and Insanity, xxxviii, 321.
Isolation, Legal Decision on, xl, 174.
Isthmian Salubrity and the Panama Canal, Boyland, viii, 442.
Is Flower-making Injurious to Health? vii, 208.
Is Medicine a Science? iv, 339.
Italy, Political Conditions in, xli, 288.
Italy, The Sanitary Condition of, Raddi, xxix, 225.
Italy, Sanitation in, xliv, 444.
Itch, Norway, Hesler, xxx, 507.
Ivy Poisoning, xxxii, 553.

Jackson, Mississippi, Local Conditions and Yellow Fever, Anderson, xxii, 214.
Jackson, E., Ocular Hygiene in the Schools, xxxv, 492.
Jackson, E. A., Ventilation and Warming by Improved Grates, xiii, 461.
Jackson, L. D., Sewage Farms, xvii, 259.
Jacobi, A., No Knowledge of Sanitation Required, xix, 115; Unsanitary Condition of the Schools of the City of New York, xxviii, 221; Hygiene and Its Accessories, xxxviii, 97; Functional Cardiac Murmurs, xliii, 28; A Tribute to, xliv, 536; Infant Feeding, xlvi, 431.
Jam, American, in England, Boyle, xlvi, 425.
Jam It, xxxviii, 406.
Jamaica, Climate of, Phillippo, xxxi, 423, Nelson, 505.
Jamaica for Health, Wolfred Nelson, xxxii, 117.
Jamaica, The English Administration of, xxxviii, 347.
Jamaica Ginger Drinking, xliv, 547.
James, B. W., Drainage of Children's Hospital, Philadelphia, xi, 795.
James, E. E., States' Rights and a National Quarantine, viii, 103.
James, Frank L., Compliment for Experimental Science, xxxiv, 16.
Janes, E. H., School Poisoning, i, 35; Management of Slaughter-houses, ii, 282; v, 315; Sanitation in New York City, xviii, 139; Triumphs and Inducements of Preventive Medicine, xxviii, 511.

Janeway, E. G., Arrest of Zymotic Diseases, v, 404; Mortality Statistics and Epidemic Influences, xii, 158.
Janin, Purification of Sewage by Means of the Soil, xlv, 193.
Japanese Home, The, Hodnett, xl, 477.
Japan, Life in, xxiii, 286; Sanitary Matters in, xliii, 530.
Japan's Need of Christ, xlvi, 383.
Jarvis, W. C., Catarrhal Affections, xv, 45.
Java Crowded, xxxix, 382.
Jayne, W. A., Diphtheria at High Altitudes, xxvii, 439.
Jefferson Medical College, xxviii, 463.
Jefferson and Vaccination, Drake, xliii, 52.
Jeffries, J. A., Tuberculosis, How, Is Acquired, xxviii, 406.
Jenner, Dr., Letter from Thomas Jefferson to, xxxvii, 71.
Jenner's Anticessor, xxxiii, 209; Jenner's Discovery and Its Value, N. S. Davis, xxxvi, 514; Celebration of, xxxvi, 443, 522; xxxvii, 110.
Jennings, C. G., Treatment of Pneumonia in Children, xxxvi, 53.
Jennings, R. G., Quarantine, viii, 62.
Jennings, Sanitary Appliances, v, 91; vi, 42.
Jennison, Mrs., Training School of Cookery, viii, 313.
Jersey City Water Supply, Pollution of, xxxv, 156.
"Jew" Question, The—Offensive Definition, xxvii, 286.
Jew, the Nomadic Characteristics of, xliv, 287.
Jewish Mode of Slaughtering Animals, vi, 318.
Jews, The Adaptiveness of, xxxix, 284; Tenacity of Life in the, xlii, 93.
Jews, The, in New York, xxviii, 180; xxxvi, 185.
Jews, Mortality of the, xx, 563.
Johnson, H. A., Sanitary Progress, xxiii, 38.
Johnson, J. N., Disinfection with Phenols, xxxix, 319.
Johnson, J. B., Fruits of Sanitary Science, xliii, 385.
Johnson, J. G., Canned Goods, xli, 477.
Johnson, Wyatt, Sedimentation in Water, xxxiii, 462; Teaching of Hygiene, xlv, 506.
Jolo, A Settler in, xliv, 564.
Joltrain, A., Railroad Accidents in France, xi, 215.
Jones, C. H., Diphtheria and Antitoxine, xliii, 529; Car Sanitation, xlv, 485.
Jones, Prof. Joseph, Origin of Yellow Fever in New Orleans, 1878, vii, 246; Obituary of, xxxvi, 369.
Joshua's Rheumatism, xliii, 283.

"Journal of the American Medical Association," Editorial Change, xxi, 559; xxvi, 369; New Editor, xlii, 352.
"Journal of the American Association of Military Surgeons," xlvii, 567.
Judd, L. D., Calomel in Diphtheria, xxxix, 32; Hygienics of the Skin, xliii, 25.
Judd, Max, Street Cleaning in Vienna, xxxvi, 40.
Judson, A. B., Sanitary Inspection, ii, 351.
Judicial Decision Against the Board of Health in Michigan, xxxiii, 441.
Judicial Decision Sustaining the Board of Health in Wisconsin, xxxiii, 450.
Jurgensen, Prof., Pneumonia an Infectious Disease, xiii, 38.
Jurisprudence, Sanitary, xxxii, 558.
Jukes, Rivals the, xxxvii, 275.
Just So, xxxvii, 210.
Juvenile Smokers, viii, 326.

Kansas State Board of Health, xxxix, 458.
Karel, J., Government Liquor Monopoly in Russia, xxxix, 246.
Keating, J. M., The Ultimate Sanitation by Fire, xiv, 97.
Kedzie, R. C., Ventilation of Schoolhouses, i, 517; Furnaces, ii, 312; Cheap Window Ventilation, iii, 39, Preventive Medicine, 86; Temperature of Living Rooms, viii, 301, City of Destruction, 11; Retirement of, ix, 275; What Is Sanitary Science? x, 705; Chemistry in Its Relation to Domestic Life, xii, 217; Drainage for Health, xiii, 303.
Keeley, An Experience with, xxviii, 142, Keeley Cure, The, 84; Keeley Fraud, The, xxix, 359.
Keller, C. A., Antonio, Texas, xxxvi, 330.
Kellogg, J. H., Ventilation, xii, 220; Graphic Method of Recording Diseased Condition of the Lungs, xxv, 505.
Keen, W. W., The Altruism of Experiments Upon Animals, xliv, 143.
Keenan, Sewerage and Drainage of Bremen, xxxv, 109.
Keenan, T. A., Toxicology of Mushrooms, xlv, 229.
Keene, G. F., Prevention of Tuberculosis, xliii, 213.
Kelly, Charles, Benefits of Sanitation, viii, 357.
Kemp, G. T., Symptomatic Significance of Black Vomit, xxvi, 289.
Kennan, G., Climate of Siberia, xxi, 39.
Kensla, Louis A., Glycozone in Gastritis, xli, 42.

Kenyon, J. B., The Home of the Beautiful, xxxviii, 135.
Kentucky Shower of Flesh, Brandeis, iv, 222.
Kenderdine, The Rev. Dr., Salting Streets for Snow Removal, iv, 102.
Kerosene Lamps, v, 172.
Kerosene Oil, Danger in, vii, 203.
Kerr, Prof. W. C., Drainage and Water Supply in North Carolina, iv, 39.
Key West, viii, 467.
Keyes, T. B., Camp and Outdoor Life for the Cure of Tuberculosis, xliv, 433.
Kidder, J. H., U. S. Navy, Freezing Out the Yellow Fever of the *Plymouth*, viii, 550.
Kidney, Floating, xxxii, 148; Rupture of, xxxiii, 169; Hygiene of, xxxiv, 241.
Killed by Wild Beasts, xiv, 189.
Kilvington, J. S., Garbage Furnaces, xxi, 481; xxiv, 20.
Kin to Great Britain, Abbott, xl, 564.
Kindel, G. J., Bedding Supplies, xxxv, 488.
Kindergarten Surprise, A, xl, 35.
King, S., Home Sanitation, xliii, 331.
Kings County Alms House, vi, 221.
Kings County, Defective Drainage, Bell, i, 531.
Kings County Hospital, Condition of, xxxvii, 534.
Kings County Medical Society, Memorial Meeting, xlv, 522.
Kinsman, Etiology and Prophylaxis of Cholera, xvi, 525.
Kinyoun, J. J., Rabies, xxvii, 507; Effectiveness of Antitoxin in the Treatment of Diphtheria, xliii, 234.
Kipling, Reminiscences of, xlii, 475, Illness of, Interest in, 471.
Kissing and Handshaking, Chancellor, xxxvi, 292.
Kissing Bug, The, xliii, 168.
Kitchen Garbage Disposal, E. F. Peck, viii, 517.
Kitchen Sinks, W. P. Gerhard, x, 577.
Kitchen, The New England, xxviii, 563.
Kizer, S. E., The Man Who Hadn't Time, xl, 40.
Klein, E., Antiseptics, xv, 306; Etiology of Diphtheria, xxv, 210.
Knaggs, H. G., Inunction, vii, 122.
Kneading Bread, iv, 352.
Knee-joint, The Resection of, xxv, 189.
Knew What He Wanted, xxxviii, 57.
Knight, F. I., Shall Anything Be Done to Prevent the Spread of

Tuberculosis? xxxiii, 103; Choice of Summer Residence, xxxix, 19.
Knock-out Drops, xlvi, 159.
Knopf, S. A., Aerotherapeutics and Hydrotherapeutics in the Prevention of Tuberculosis, xxxix, 24; Tenements and Tuberculosis, xlv, 208.
Knowledge, What, Is Most Worth? xlv, 284.
Knoxville Health Reports, vi, 188; x, 565.
Kober, G. M., The Progress of Hygiene and Sanitary Science in the Nineteenth Century, xlvii, 97.
Koch, R., A Cure for Tuberculosis, xxv, 494; Water Filtration and Cholera, xxxi, 237, 338, 404, 495; Medical Observation in the Tropics, xli, 131; Bacillus of, Effects of Solar Light on, Jousset, xlvi, 58; The Fight Against Tuberculosis, xlvii, 197, Modified Statement, 340.
Kohnke, Q., Yellow Fever—No Danger of, from Upturning the Soil, xliii, 242.
Kopp, Dr., Unwholesomeness of Chemically Pure Water, xlii, 426.
Koutkowski, M., Sewage Pollution of Rivers, xlv, 312.
Koppenfel, Hugo von, Prevention of Malarial Poison, ix, 309.
Korosi, J., Preventive Power of Vaccination, xix, 242; Relative Ages of Husband and Wife, xxvii, 540.
Kræter, How to Determine the Hardness of Water, x, 29.
Kretszchmar, P. H., Isolation of Consumptives, xxiv, 243.
Kumyssgin, Davis, xxix, 420.
Kurz, C. E., Fever Epidemic from Drinking Sewage, xviii, 221.
Laberge, L., Disposal of Garbage, xix, 446; Health in Montreal, xxxiv, 206.
Labor as a Form of Athletic Exercise, F. L. Oswald, vii, 210.
Labor and Relaxation, xxxi, 93.
Laboratory, The Relation of the, to Public Health, Prof. Welch, xliii, 515.
Laboratory, State Cancer, Suiter, xliii, 528.
Laborer, Who is The? xvii, 248.
Lachapelle, E. P., Disease Prevention, xxxiii, 385; Prophylaxis of Tuberculosis, xlvii, 325.
Lacrymal Canal, The Operation on, xxv, 88.
Lacing, Tight, Consumption One of Its Penalties, xxi, 287.
Lactic Acid in Treatment of Diarrhœa, xxv, 274.
Lactocereal Food, xxvii, 69, 260.
Lactometer, The, iv, 137; v, 86.
Lactopeptine, vi, 497; xiii, 16; xiv, 384; xvii, 284.

Ladrone Islands, The, xli, 382.
Lady Montagu's Account of Inoculation, xxxiii, 187.
Lager Beer, an Intoxicant? Is, xvii, 382.
La Grippe, xxv, 267; xlvi, 160; Complications and Treatment, Grube, xliii, 265; From a Surgical Point of View, xxv, 370; Experience with, Dennis, xxviii, 61; Photograph of Bacillus of, xxviii, 64; Specifics for, xxviii, 185; Prophylaxis of, xxviii, 259; Followed by Lethargic Sleep, xxiv, 284; Special Conditions of the Lungs in, xxiv, 283.
Lake Mahopac, The Gregory House, iii, 192, 288.
Lake Superior, The Coldness of, Ralph, xxviii, 546.
Lake Waters, Charles, Smart, xxii, 418.
Lamb, G. M., Cremation vs. Inhumation, xiii, 243.
Lambert, C. A., Artificial Lighting, xlii, 232.
Lambert, T. S., Oatmeal, iv, 275.
Lamphear, Dr. Emory, Removal, xxxiii, 189.
Lamps, Safety, in Mining, Gordon, xix, 103.
Land of the Lily and the Rose, Belfort, xxxvii, 392.
Landreth, O. H., Typhoid Fever at East Hampton, L. I., xlvi, 216.
Lang, O., Spontaneous Combustion, xliv, 449.
Langley, Prof. S. P., Weighing the Sunlight, xlvi, 307.
Langworthy, C. H., The Functions and Uses of Foods, xlvii, 385.
Lannay, M., The Protection and Purification of Water Supplies, xlv, 290.
Lanolin, xxiv, 477.
Lanolin and Boric Acid in Skin Diseases of Children, xxii, 187.
Laparotomy for Gunshot Wound of the Abdomen, xxiv, 86.
Laparotomies. Wounds of the Uterus in, xxvi, 461.
Lard, Cotton-Seed Oil in, How to Detect, xxi, 478; And Its Compounds, xxv, 194; Pure Lard Bill, The, xxv, 157.
Larimore, F. C., Hygiene of the Sick Room, xx, 220.
Larynx, An Artificial, xxxv, 446.
Larynx, Tolerance of Foreign Body in the, xxvii, 69.
Larynx, Winter Coughs, Treatment of, Fleming, xli, 546.
Lash, H. M., Diagnostic Responsibility, xviii, 213.
Lasophane in Skin Diseases, xxxii, 552.
Late Pest, or Plague, in Russia, Schuppert, vii, 487.
Latham, Baldwin, Influence of Soil Water on Health, vi, 8; xvii, 394.
Latitude, Effects of on Health, viii, 90.
Laughter, as a Medicine, ii, 74.

Laura Bridgman, A Second, xxxiii, 224.
Law, J., Causes of Acquired Immunity from Infectious Diseases, xvi, 97; Relation of the Diseases of Lower Animals to Man, xxix, 321; Indiscriminate Slaughter of Cattle for Tuberculosis, xxxviii, 400.
Law Creating N. Y. State Board of Health, Amendment of the xlvi, 246.
Law of Longevity, Nathan Allen, i, 481.
Lawrence, F., Funeral Reform, xv, 405.
Laws of Heredity, J. R. Black, v, 326; Nathan Allen, viii, 385.
Lawton, W. H., The Unsanitary Pin, xlv, 340.
Lawyer, An Enlightened, xxxii, 443.
Lawyer, A Disbarred, xlv, 460.
Lawyer, A Prosperous, xlii, 220.
Lawyer's Diagnosis, A, xiv, 459.
Lea, R. S., Sand-Filtration of Water Supplies, xlii, 289.
Lead in Potable Water, iii, 134; Poisoning from, xvii, 262; xliii, 147, 230.
Leaden Pipe for Water Distribution for Domestic Purposes, v, 280.
Leal, John C., Typhoid Fever and Impure Matter, xli, 420.
Learned, J. B., Method of Inducing Sleep, xl, 33; The Sanitary Pig, xlv, 3.
Leaming, J. R., Philosophy of Climate Treatment of Diseases of the Chest, xviii, 546.
Lean, Why He Was So, xxii, 234.
Leavitt, S., Sewage Question, i, 459, 507; ii, 59, 87.
Le Conte, J., Sanitary Commission of Philadelphia, iv, 104.
Leduc, A., Densities of Nitrogen, Oxygen and Argon, xl, 411.
Lee, Benjamin, Smallpox—the Cost of a Great Epidemic, iv, 43, Trials and Triumphs of a Sanitarian, 318; A Shoe That Will Not Pinch, Illustrated, xii, 493; Should Not the Government Defend Our Ports Against Contagious Diseases? xx, 510; Relations of the Laboratory to the State Board of Health, xxviii, 310; Responsibility of the National and State Governments for the Purity of the Water Supply, xxiv, 193; Leprosy: Is Supervision Necessary? xxxii, 24, How Shall Our Lepers Be Cared For? 354; Cart Before the Horse, xxxiii, 460; Prevention of Cholera, xxxv, 41; State Medicine, Pennsylvania, xxxviii, 3; xl, 97; Infectious Diseases, xli, 419; The Sanitarian, xlii, 441; Definition of Epidemics, xlv, 507.

Leeds, A. R. Nutrition of Infants, xix, 239.
Leeds, L. W., Schoolhouse Ventilation, i, 385, Sleeping Rooms, 354, New York City Schoolhouses, 371, Sanitary Architecture, 105; Principles of Ventilation, ii, 79; Has New York a Board of Health? iv, 145; Observations of a Sanitary Engineer in Paris, vii, 163.
Leffingwell, G. W., The Microbe, xxxv, 339.
Legal Dilemma, v, 270.
Legal Opinions, xl, 104.
Legislation, National, Need of, for the Protection of Human life, Bell, xxix, 3.
Legislation Against Tramps, Dr. Holland, vi, 499.
Le Hardy, J. C., Yellow Fever, xxxiii, 289; Mortality Among the Negroes, xxxvii, 492; Sanitary Progress in Savannah, xxxvii, 30, 97.
Leighton, A. W., Sanitary Science in Education, xix, 205.
Lent, F. D., Florida as a Health Resort, iv, 529.
Leper, A., and the Health Service, xxxix, 70.
Lepers, Census of, in the United States, xlvii, 158.
Lepers, The, of Molokai, xxiv, 524; Wheeler, xlii, 49; xlv, 276.
Lepers, The Canadian, xlii, 522.
Lepers of Jerusalem, iv, 442.
Lepers, A National Home for, Bracken, xliii, 528; xlv, 508.
Lepers, To Nurse, xlvii, 353.
Leper Home, The Louisiana, xlii, 429; xlv, 271.
Leprosy, xiii, 362; xv, 74; An Exclusive Human Disease, Prince A. Morrow, xxxix, 561; in Cuba, xxxvi, 97; in Colombo, xxxviii, 184.
Leprosy in the United States, Farquharson, xiii, 3; Questions Regarding, xiv, 474, 503; In Sandwich Islands, Gronvold, xix, 120; History of the Eastern Coast of the United States, xxvii, 443; Leprosy and Consumption, xxv, 153; Not Contagious, xxxvii, 471.
Leprosy and the Mosquito, xlvii, 530; Contagious, xl, 47.
Leprosy and the Nose, Sheppegrell, xli, 128.
Leprosy and Its Treatment in Honolulu, Woods, xxviii, 231.
Leprosy and Vaccination, Chew, xxxii, 498.
Leprosy and Leprosy Homes, xli, 502.
Leprosy, Spread of in Germany, xlv, 474.
Lesions of Central Cells, Ballet, xli, 241.
Lesley's Gothic Furniture, iii, 288.
Lesson of Diphtheria Epidemic, xxxiv, 73.

Lessons on House Drainage, v, 491.
Letchworth, W. P., Poorhouse Administration, xvi, 333; Asylum Abuses, xvii, 404; State Boards of Charities, xxx, 151; Provision for Epileptics, xxxiii, 23; Suggestive Statistics of the Dependent Classes, xxxvi, 235; xl, 3; xlvi, 129.
Let the Inebriate Smile Again, xxxiv, 496.
Leucocytes, xxxviii, 91.
Leveric, S. B., Story of an Entozoon, iv, 96.
Lewes, V., Spontaneous Combustion, xxxii, 141.
Lewis, C. T., Influence of Civilization on the Duration of Life, v, 193; Influence of Marriage on Longevity, xlvi, 292.
Lewis, Louis, The Turkish Bath, xxxvi, 231.
Lewis, Richard H., Drinking Water and Malarial Diseases, xxxiii, 496.
Levasseur, E., Centenarians, xxii, 131.
Level-headed Baby, xii, 136.
L'Home a la Fourchette, xliv, 456.
Liautaud, A., Pink Eye Among Horses, ii, 164.
Libel, xxxvi, 128.
Libel Suit, A Two Hundred Thousand Dollar, xxv, 326.
Liberty and Happiness, xlvii, 566.
Liberty, The German Struggle for, xxxv, 187.
Libraries, Free Traveling, xl, 282.
Library, The Alexandrian, xlii, 560.
Liceaga, E., Yellow fever, xxxv, 519.
License to Practice Medicine, State Uniformity for, xliii, 450.
Liernur's New System of Keeping Cities Clean, O. R. Laung, vii, 396; Chancellor on, xii, 145.
"Life Problems.—Every full-grown adult person throws out by respiration about four and a half gallons of deleterious gas and watery vapor per hour; and the children of school age average each one about three gallons per hour. Suspended in this deleterious respired air and vapor, there is in every 1,000 gallons, 3 gallons of dead, decomposing animal matter! In hospitals and bedrooms, other evaporations add to the mass. And in ferryboat cabins and city railroad cars, as ordinarily conducted, saliva and tobacco smoke add fifty per cent. Now, if one person throws out four and a half gallons of poisonous air every hour, how long will it take 1,000 persons to fill a church full? Fifty children to fill a schoolroom full? Forty persons a car full, or 200 persons a

ferryboat cabin full, plus the tobacco smoke and saliva?" Editorial (1879)), i, 458.
Life.—"What is life but what a man is thinking of all day?" (Emerson), Julia M. Lippman, xxxvi, 474; xlii, 435; xliii, 446; Carelessness of, in Africa, xxxvii, 283; Economy of, Edwin Chadwick, xxi, 25; Essentials of, xl, 280; Length of (Human), M. I. Holl Schooling, xlii, 445; Influence of Easy Circumstances on the Prolongation of, D. C. Drysdale, xix, 223; Loss of, at Sea, xi, 378; Pleasure and Pain in the Economy of, W. J. Potter, xi, 713; The Saving of by Sanitation, A. Ransome, xv, 390; The Secret of Success in, xxv, 480; The Song of, xlvii, 376; in Manila, Wallace Cumming, xli, 283; Life and Death in New York, xii, 163; Life and Health, xl, 475; xlii, 92.
Life-Car, The, xxxvii, 382.
Life Expectation in Canada, xv, 311.
Life and Health, xl, 475; xlii, 92.
Life Insurance, iv, 43; On Trial, v, 184; xv, 264.
Life Insurance, as a Means of Business Success, and Promotive of Longevity, i, 41; iii, 288, Documents on, 334; Cancer in Medical Examinations for, xx, 24.
Life Insurance Companies, v, 82, 129.
Life Insurance and Public Health Problems, Hoffman, xxxix, 38.
Life Insurance and The Sanitarian, iv, 189.
Life Insurance, Trades Unions, i, 323.
Life Insurance Investigation, v, 230.
Life Insurance in Various Countries, xi, 56.
Life on the Western Border, Wister, xxxiii, 240.
Life Preserver, A New, at Sea, xiii, 45.
Life Savers, Youthful, Kobe, xlvi, 476.
Life-Saving Apparatus in Belgium, xlv, 151; Improved, in Germany, xlvii, 536.
Life-Saving Extraordinary, xlvi, 92.
Life-Saving Prize, The Pollok, xliv, 259.
Life-Saving Service, The, xliv, 60.
Life Tables, The Old Roman, Bradley, xviii, 47.
Life's Equivalent, i, 156.
Light, The Efficiency of, with Regard to Energy, xxxvii, 33.
Light, Artificial, Productive of the Same Character as Daylight, Dufton and Gardner, xlvii, 334.
Light, Incandescent, Effects of on the Eyes, xlvi, 158.
Light, Treatment of Disease with, xlv, 69.

Light in the Public Schools, Lundy, viii, 163.
Light in the Sick-Room, Richardson, xxiv, 313.
Lighthouse, The Best in the World, xxv, 318.
Light Without Heat, Humphreys, xxii, 326.
Lighting, Artificial, Prof. C. Lambert, xlii, 232.
Lighting and Warming, Spice, xxiv, 40; xxv, 214.
Light in Stables, v, 212.
Lightning, Damages by, xxxvii, 39.
Lightning Rods, i, 63; xxiii, 50.
Lime an Insecticide, xlvii, 350.
Limitation of Debate, xli, 144.
Limitation and Preventing of Epidemics, T. F. Rochester, vii, 289.
Lincoln, D. F., School Hygiene, iii, 193; Sanitary Requirements in Schoolhouse Architecture, iv, 481; Temperance Teaching, xxxiv, 434.
Lindsley, C. A., An Epidemic of Typhoid Fever, xvi, 223; Presidential Address, American Public Health Association, xli, 423; Sanitary Administration of a City, xlii, 442.
Lindsley, J. B., Popular Progress in State Medicine, xxiii, 97; The People and the Public Health Movement, xxix, 97; xxxii, 7.
Lindsay, M. A., Climate as a Therapeutic Agent in Phthisis, xx, 26.
Lister, Lord, on Vaccination, xli, 406.
Listerine, xiii, 375; xv, 453; xviii, 572; xxii, 548; xxv, 191; xxxi, 39; in Infantile Diarrhœa, xxxiii, 269.
Liquor Dealers, Retail, Number of in the United States, xxv, 251.
Liquor Monopoly in Russia, Karel, xxxix, 246.
Liquor Prosecutions, xlv, 72.
Listerism Discarded by Lister, xxv, 369.
Lithia Waters, Value of, xxx, 138; xxxv, 266; xli, 450.
Lithiasis and Gout, xxxviii, 451.
Litigation of Life Insurance Claims, v, 313.
Live Man in a Village, iii, 171.
Liver, Increase of Volume of the, xxxvii, 248.
Livermore Stylographic Pen, xi, 191.
Liverpool, Sanitary Condition of Shipping at, Packard, xi, 247.
Lives, How Three Thousand May Be Saved in New York Yearly, Biggs, xlvii, 161.
Lives Lost on Board Passenger Vessels, xvii, 473.
Lives Lost in the Civil War, xli, 558.

Living, Improvement in the Ways and Means of, Sedgwick, xlvi, 223.
Lobes of the Brain, Wilson, xl, 480.
Local Boards of Health in the State of N. Y., xxxiii, 272.
Local Causes of Yellow Fever, vii, 319.
Lockwood, Purifying Sewage by Bacteria, xxxiii, 217.
Locomotor Ataxia, The Suspension Treatment of, Danger in, xxiii, 280.
Locomotive Accidents of a Month in Paris, xlvii, 374.
"Lodge Doctoring," xxxviii, 66.
Lodging House License, xxx, 480.
Lodging Houses, The Mills, xxxviii, 191.
Lodgings for Seamen on Shipboard, xxxiv, 470.
Lofty Walls, xxxiv, 525.
Lomas, N., Hygiene of Rice Culture, xxvii, 511.
Lomb Prizes, The, xvii, 476; xix, 68.
London, Ancient and Modern, from a Sanitary Point of View, Poor, xxiii, 52.
London Dustman, vii, 202.
London, East, Life in, xliv, 90.
London's Greatest Danger, xlvii, 92.
London, Health Statistics of, xxxv, 369; Noises, xxxix, 44; Overcrowded xlvi, 189.
London, Port of, xi, 526; Sanitation of, xviii, 418; Tenements in, xxx, 510; Subterranean, xxxii, 511.
London Sewerage Question, xii, 453.
London Smoke, i, 120.
London Water Supply, Greenwood, xxxiv, 217; xxxvii, 475.
Long Beach, The New Summer Resort, viii, 321.
Long Island, Climate of, LeG. N. Denslow, xlvii, 415.
Long Island City Nuisances, vi, 371, 414; xxiii, 68.
Long Island and Rapid Transit, vi, 279.
Long Island College Hospital, ix, 463.
Long Island Sanitary Topography, Brooklyn's Water Supply, Etc., xxxiii, 215; Water Basin, Bell, xxxiv, 322.
Long Island Summer Resorts, vi, 380.
Long Island Wells, xliv, 245.
Long Island City Stenches, vii, 318.
Long Life, The Lesson of, xxii, 536.
Long, O. R., Water Supply, xii, 240.

THE SANITARIAN.

DECEMBER, 1902.

NUMBER 397.

THE TREATMENT OF SMOKE: A SANITARY PARALLEL.*

By W. N. SHAW, Sc.D., F. R. S.

INTRODUCTORY.

When I was honored by the request to address you, it was suggested that I should take as my subject some aspect of the fog question. I have allowed the importance of the subject to override the many considerations which I could adduce in opposition to the suggestion, and I propose to put before you some remarks as to what demands sanitary reformers may fairly make upon practical men of science and others, in regard to the mitigation of the evil effects of fog in towns; and incidentally I may be allowed to point out what demands in this connection, desirable in themselves, must be regarded as beyond the scope even of scientific ambition.

For the sake of clearness I wish to cast what I have to say in the form of a parallel or analogy. I wish to regard the smoke in fog as the element of the problem to which special attention should be directed, and to regard the smoke as a species of domestic or industrial refuse which has to be removed somehow or other. I propose to look upon the removal of smoke as a problem not dissimilar in its fundamental character from that of the removal of sewage, and in what I have to say I wish to keep in view the analogy that exists between the elements of these two problems. I choose the problem of the removal of sewage for this purpose, because it is a problem in which sanitary reformers have achieved gradual but conspicuous success during the nineteenth century and even within the memory of the present generation, to the great advantage of the whole community.

*Lecture to the Sanitary Congress at Manchester, September 9, 1902.—From "The Journal" of the Sanitary Institute.

In all matters concerning the disposal of refuse we seem to progress by slow degrees from an individualist to a socialist point of view. By way of illustration of the extreme individualist view, I may quote from my own experience a case of the unrestricted gratification of the natural instinct for the disposal of refuse. Some years ago when I was Proctor at Cambridge the peaceful passers-by in a narrow street were disturbed and even alarmed by a bottle of pickles that came hurtling through an open window and fell on the pavement. It was my duty to take part in the subsequent proceedings. The plea put forward with an air of complete confidence in its sufficiency by the young man still in the stage of unrestrained instincts was the simple one, "But, sir, the pickles were bad." I will make no further disclosure as to whether that simple plea was regarded as good or bad in University law as regards refuse pickles, but I will say that in earlier stages of sanitary progress other forms of refuse have been treated in a not dissimilar manner, and at this day it is not great exaggeration to say that we all act with similar recklessness with regard to our smoke; we throw it into the atmosphere and leave to beneficent chance the question whether or not it injures our neighbors.

In large towns we have traveled very far in the path of development from the original instinct as regards the problem of the disposal of sewage-polluted water, but there has been no corresponding progress in the disposal of smoke-polluted air. In London, at a cost to the community of £211,000 a year, or 1.38d. in the pound on rateable value, nearly a million tons of sewage are removed day by day for about 600,000 houses—about a ton and a half on the average for each house. In the same period, viz., each day, in winter, each house throws into the atmosphere on the average perhaps ten tons of smoke laden air, or a total quantity of five millions tons of smoke laden air for the inhabited houses of London per day, or possibly seven millions of tons per day if we include factories. That is my estimate, on grounds which I will give later on, of the amount of refuse which we throw into our atmosphere for beneficent chance to remove, if it can. The actual weight of solid soot which gives color and body to the smoke is a very uncertain quantity; it may in the worst cases amount to nearly 3 per cent. of the coal consumed, and the houses of London probably get rid of 300 tons of solid refuse every day by throwing it up the chimney. It is mixed with much larger quantities of other more or less injurious products of the combustion of coal,

complete or incomplete, but it is with the soot, which alone darkens and defiles, that I am primarily concerned.

The Initial Stages of the Two Problems.

The difference of our attitude toward these two problems is very conspicuous, yet, physically speaking, the whole difference between the problem of the removal of sewage and that of the removal of smoke on similar lines lies in the comparatively trivial distinction that under the action of the mysterious force of gravity the sewage naturally goes downward, whereas, in the first instance, smoke goes upward. You may object that I have neglected to take into account the relatively large volume of smoke as compared with that of other forms of house refuse; I simply reply that if the smoke of our fires had been in the habit of falling downward and finding a lower level instead of rising to a higher level and making its way up the chimney, we should long ago have been driven into solving the problem of its disposal, as we have been driven to deal with the disposal of sewage, no matter how great the volume might be.

The mention of the circumstance that smoke goes upward instead of downward leads me to point out that in days not so very remote the arrangements for disposal of smoke might be regarded as comparatively in advance. The genius who first conceived, or put in practice, the idea of confining smoke to a narrow flue specially built for it wrought a revolution in house-building. There are still archeological survivals which show that before his day there were architects who were satisfied with the more simple provision of a hole in the roof, and there are even traces extant of a still earlier architectural style of inhabited dwelling in which such rudimentary provision as a special opening for smoke did not exist. I will spare your feelings: I will not attempt to describe the corresponding stages in the development of the means of disposal of other kinds of refuse: they could be traced—*gardy loo* is the survival of a warning with special meaning in the Scottish capital—and examples of present day practice might be adduced in illustration. But while the disposal of sewage has been generally, though slowly, progressive since the first commissioners of sewers were appointed in 1531, the invention of the chimney seems to have been so successful as to paralyze mechanical enterprise in that department until the subject was taken up in later years by cowl makers, who have devoted much ingenuity to the improvement of the terminal outlet.

I am not overlooking the fact that immense improvement has been made in grates for burning coal, both as regards economy of fuel, and in some examples as regards the amount of smoke produced. That is another branch of the subject; at the moment I am concerned with the disposal of the waste products independently of the amount produced, and, for domestic purposes, the simple chimney, with or without the assistance of a cowl, remains a sufficiently effective apparatus; the practice of using it to throw smoke into the atmosphere to be carried away by any currents of air that may arise is universal.

Demands Beyond the Range of Scientific Ambition.

One of the incidental obstacles to a scientific treatment of the smoke question is that at first sight the atmospheric currents appear to perform the duties of general scavenger with such exemplary efficiency that few people give any thought to the general success or failure of the method itself. On foggy days they become aware of the nuisance which they have created, and accordingly desire that steps should forthwith be taken to remove or prevent fogs, with the understanding that whatever does away with the fog will, at the same time, do away with the smoke nuisance. Now, the prevention of fog as a meteorological phenomenon is one of the demands which I think we are not legitimately entitled to ask of practical men of science; it is beyond the ambition even of physical science. To use the parallel further it would be just as unreasonable for us to throw all our refuse into the streets, and, when we found that it accumulated beyond endurance, demand of men of science that they should provide showers at suitable intervals to wash it all away.

Let me give you some justification for this opinion: The meteorological conditions for the formation of inland fog are primarily cold weather with scarcely any barometric difference over a large area. Under suitable conditions of temperature when the barometer readings at Oxford, Yarmouth, and Dungeness are nearly identical with that for London, fog is inevitable. To prevent or remove fog, meteorologically, we must manage to change the barometric reading at Oxford, Yarmouth, or Dungeness, or change the atmospheric temperature. I do not know which of these two enterprises would be considered the easier. There is no hope in either direction; both may be classed as impossible.

There remains for us to consider the removal of fog by the

actual removal of the foggy air of London. I have on several occasions seen suggestions which seemed to regard such a scheme as possible, but I have never been able to understand where the air would be sent to, and by what it would be replaced. Any such proposal has always seemed to me to come perilously near to a scheme for sweeping away the Atlantic with a mop. Any system which requires to be brought into operation at short notice to meet a special emergency must always be subject to special difficulties. A heavy snowfall, which may give about 10 tons of snow for every hundred yards of street, defies the powers of local authorities to remove it, and the removal of the street air, of which 17 feet of height would give the same weight for the same length, might well be regarded as beyond the resources of civilization, even if it could be loaded up in carts. That is out of the question, and I think we may agree that the removal of foggy air from the streets is as hopeless a matter as the prevention of fog, and that when once smoke has been allowed to be discharged into the free atmosphere all chance of removing it is gone.

Gravity of the Smoke Nuisance.

Moreover, it is not only on foggy days that the method of leaving the atmospheric currents to act as the smoke scavengers fails. In large towns the system is, generally speaking, inefficient. It is easy to adduce statistics in support of this assertion. It is a matter of common knowledge that one of the results of London smoke is a very considerable reduction of the amount of sunshine and daylight. I will quote the figures. From a table recently compiled, which gives the average amount of sunshine recorded at a large number of stations in the British Isles during the twenty years from 1881 to 1900, I have made out a comparison between the records of London and the average of those for other places of the possible duration of sunshine for the several months are as follows:

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
London	10	15	23	31	38	36	38	39	34	24	14	9	per cent. of possible duration.
Average for the Southern district of England	21	28	38	42	46	43	46	47	44	37	24	21	do.
London, loss in approximate figures.	½	½	½	½	½	½	½	½	½	½	½	½	

Summing up this table in few words we may say that in summer London loses one-sixth of its sunshine, and presumably also

about the same fraction of its daylight, on account of its smoke, while in winter its loss amounts to one-half for a similar reason. The figures themselves are impressive testimony to the effect of London smoke, but they only feebly foreshadow an incalculable loss eloquently and pathetically represented by the late Bishop Creighton in a letter, which I received from him in the winter of 1899, ostensibly written to congratulate me on my removal to what he called "this place of darkness."

The contrast of the figures for summer and winter is remarkable. As regards smoke, the difference rests chiefly on the fact that there are fewer domestic fires in summer, and we may therefore legitimately conclude that the domestic smoke is the most serious item to be reckoned with in considering the smoke question. It is, in fact, two-thirds of the problem.* Any one who wishes to satisfy himself as to this aspect of the question can easily do so. During the past winter, Captain Carpenter, R.N., D.S.O., has been conducting an inquiry for the Meteorological Council into the prevalance and distribution of fogs in London, and in the course of his investigation has ascended on separate days in each week the Victoria Tower at Westminster and the Upper Gallery of the Dome of St. Paul's Cathedral. These two buildings are a mile and a half apart as the crow would fly (if he were able to see where he was going), but on no single day was Captain Carpenter fortunate enough to be able to discern the one building from the other until March was well established. There is here no question of persistent fog in the meteorological sense; even on windy days, when fog was meteorologically impossible, there was no possibility of seeing a distant object on account of smoke. The smoke in this case was domestic smoke from the thousands of chimneys, each using the primitive plan of pouring its refuse into the atmosphere, and continuing to lay upon that beneficent medium a burden greater than it could perform—even on windy winter days. Not only is the magnitude of the task too great, but the manner in which the atmosphere deals with it is not by any

*The corresponding figures for Glasgow as compared with Douglas (Isle of Man), the only other station in the same Meteorological district, indicate that domestic smoke is only responsible for one-half of the smoke problem in the Glasgow district, though the want of stations makes the comparison incomplete. The figures are as follows:

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Glasgow, sunshine....	10	17	24	30	33	31	28	28	26	22	11	8	per cent. of possible duration.
Douglas, "	21	26	37	43	46	43	39	38	38	32	24	18	do.
Glasgow, loss in approximate figures	½	½	½	½	½	½	½	½	½	½	½	½	

means satisfactory. It does not consume or annihilate the smoke, or render it harmless as it does the germs of many diseases; it does not even, like well-behaved scavengers, carry it to a suitable spot and deposit it in neat or untidy heaps; the air carries its load a little way, longer or shorter, according to the state of the weather, and then drops it, regardless of consequences. The results are easily recognized. Some months ago a resident in Essex sent me what had all the appearance of a bottle of ink, as a sample of rain, which he had collected during a thunder shower, when the wind had come from the direction of London. No doubt the atmosphere had found in the rainfall a suitable opportunity for getting rid of its soot. About the same time a similar occurrence was reported from the Midlands, north of the Staffordshire smoke centre, with a southerly wind, and I noticed also by chance, at nearly the same time, the report of a similar occurrence from the country to the south of Paris, under the influence of a northerly wind. These sooty rains, which must present a difficult problem to the flower grower, are not by any means an unusual phenomenon, but that is not all. A very prominent meteorologist, who lives near London, and who has been passing the summer in the Western Highlands, called my attention on several occasions during a visit to him there to a peculiar type of thick, dull, low haze. From his experience of corresponding phenomena near London he referred the special and very depressing appearance to Glasgow smoke. It was never present unless the wind was in a particular quarter and never absent if the wind was appropriate. I traveled by steamer on a day which furnished an excellent example of the type, and the wreaths of soot lying on the water were a sufficient confirmation of the explanation. A feature of the journey was the tremendous efforts of a school of porpoises to jump out of their native element: their obvious wishes to get up higher were so much in accord with the feelings of human beings in the lower regions of the atmosphere, that one could not help wondering whether they also were feeling the oppression of the soot and were making vigorous though mistaken efforts to leave it behind them.

I could cite other instances of inroads which smoke makes upon meteorology, but I regard them as the small dust of the balance compared with the gross load of dirt which the householder and the gardener of London or Manchester has to contend with, and the really appalling loss of sunlight and daylight which the inhabitants of large cities have to suffer.

That we endure the presence of all this burden of refuse in the

air which we breathe, and which carries all our daylight, while we have eliminated the corresponding refuse from our streets and our drinking water, is partly to be accounted for by the fact that ideas about the treatment of smoke are still in an almost primitive stage; partly also the inefficiency of the atmospheric currents for renewing the air of our great cities in ordinary weather is not fully realized. It is only during persistent fog that the failure is complete and unmistakable. On foggy days when we thrust our refuse into the atmosphere, it simply descends upon our heads and into our houses. We might almost as well have not chimneys at all. The experience of Sir W. Thiselton Dyer at Kew could easily be shown to be the experience of all of us who live in large towns, if we were able to make such measurements as he made in 1891, when, after a week of fog, he found upon the greenhouses of Kew—a comparatively favored atmospheric position for London —a deposit of tarry matter at the rate of six tons to the square mile.

If, then, we are not entitled to expect science to tell us how to remove fogs or smoke when it has been discharged into the atmosphere, what steps can we take? So far as I know the only suggestion put forward as practicable by those interested in the abatement of the smoke nuisance, is to invite householders, and compel factory owners, not to make smoke, or to consume it if they make it, or, in the third event, to make as little as may be, consistently with their own interests. As regards factories, very considerable improvement has followed these efforts, and I do not wish to be adversely critical when I point out, first, that the distinction drawn between the factory and the domestic establishment is unscientific, and secondly, that that was not the plan adopted in the parallel case of the removal of sewage. Am I not right in saying that the advance in sanitation, in that particular, has arisen from the fact that the local authorities have used common funds to provide facilities for the removal of such refuse by main drains or otherwise, and have then compelled householders and others to make use of the facilities provided?

Further Development of the Analogy.

I would like to follow the analogy somewhat further, and subsequently call attention to the share which a local authority could fairly take in such an enterprise, supposing it were agreed that the proper course to be pursued is, not to prevent smoke by penal

legislation, but to encourage the interception of smoke and the removal of the sooty particles before the air containing them is allowed to escape. I do not wish to say that this is the only or the best mode of dealing with the question; I only want to consider whether it is, *prima facie,* practicable enough to justify our including inquiries with regard to it in the demands that sanitation may reasonably make upon science.

The suggestion may seem hopelessly extravagant, but if you will allow me I will offer a few considerations in mitigation of your criticism of my venturesome proceeding.

First—there is nothing new under the sun—since I commenced putting my notes together I have learned that practically I am only recalling a suggestion made many years ago. My attention was called to the fact by Dr. E. Hopkinson. A proposal for the treatment of smoke by the erection of municipal chimneys was made in Manchester by one who was prominent among the many Manchester men of business who have been distinguished by their scientific achievements, Mr. Peter Spence.* I find very much encouragement in this, because it is precisely in such a city as Manchester—a city of fogs and smoke, but also the city of Dalton and of Joule—where the facilities for the association of scientific experiments with real practical life, have been so wonderfully developed around this hall, that an enterprise of this character could be taken in hand, and Manchester is in a better position for taking up the almost forgotten suggestion than any other of the abodes of smoke.

Secondly, the present method of dealing with smoke is by no means final, although, as I have said, it has marked a most important stage of progress. In many cases it achieves its primary purpose excellently, yet one of the most conspicuous features of London architecture is the enormous variety of smoke cowls, in all stages of dilapidation, to be seen surmounting the roofs. Almost every chimney stack is a sort of museum of contrivances for improving the action of chimneys. I do not know what precise meaning to attach to the different states of dilapidation, but the mere exhibition of so many contrivances can only mean that smoky chimneys are not by any means so rare as they might be under more favorable mechanical conditions. I should be glad if someone would be good enough to remark that the differences of

*See "Coal, Smoke and Sewage scientifically and practically considered, being the substance of a paper read before the Literary and Philosophical Society of Manchester by Peter Spence." 1857.

height of roofs of the London houses make the treatment of smoky chimneys especially difficult, because that would enable me to put my second consideration the more forcibly by saying that on that very account, if on no other, the separate chimney method of dealing with smoke is not suited to the circumstances of large towns.

Thirdly, I notice that when the designer of a factory erects his building he takes a further step in advance in the treatment of smoke; and provides a single smokestack for a considerable number of independent fires. The existence of this practice makes me regard the separate opening on each chimney of the domestic house into free air as not absolutely required by any physical laws governing the removal of smoke. The factory builder is not always successful in using his chimney for preventing smoke, but he is successful in leading the foul air of many flues into one channel which might afford an opportunity for depriving the smoke of its soot.

Moreover, arrangements for propelling air mechanically are becoming every day more extended. Some of them as employed in various systems of ventilation are quite as elaborate as any that would be required to deal with the smoke of an ordinary house or block of houses. A public dining room is hardly regarded as properly equipped in the present day unless it has a fan for ventilation, generally for the removal of tobacco smoke after dinner. Laboratories and other buildings of a similar character are provided with special means, mechanical or thermo-mechanical, for removing noxious fumes. There is no sufficient distinction to be drawn between coal smoke and other forms of refuse that foul the air to make it necessary to use one system for the former and a different one for the others. It thus seems almost certain that if the domestic architect had sufficient encouragement to make the attempt, he would not find the plan of dealing with household smoke by the method of the factory chimney or by mechanical propulsion beyond the range of practical physics.*

The plan of using a single combined orifice for the delivery of the smoke of a number of chimneys of a domestic building has actually been introduced in the case of a building that had originally, and still has, its separate flues, unless I have been deceived by external appearances. Within sight of the windows of my

* In pursuance of Mr. Spence's ideas, his successors at the Manchester Alum Works have arranged a single chimney to carry off the smoke of a new building, comprising a chemical laboratory and a suite of offices—sixteen rooms in all.

office is a row of three houses, the roofs of which are much below the level of surrounding buildings. Most chimneys in such situations in London are separately provided with some sort of cowl, but in the case I speak of, groups of four chimney stacks at the angles of a square have been capped, and a single flue led from each stack to a central chamber surmounted by a large lobster-back cowl. From this central cowl the smoke of the four chimney stacks is delivered to the outside air. This example seems to me to be especially encouraging, because it shows that if it were desirable to drain away the smoky air of houses with a view to "treatment," it might not be considered necessary to entirely rebuild the houses.

Some Particulars of the Smoke Problem.

For purposes of comparison let us next consider what is the amount of smoke-laden air with which we have to deal. It is difficult to give any but the roughest estimate. I propose to reckon with the weight of air and not exclusively with its volume, because in making large quantities of air the weight is an important element in the calculation; at the same time the weight of air is frequently overlooked. Let me give some particulars: a cubic foot of air weighs about an ounce and a quarter, .08 lb.; the air in a room 15 ft. square and 10 ft. high weighs about the twelfth part of a ton. A room 70 ft. long by 40 ft. wide and 20 ft. high holds two tons of air. Thus, when a continuous process of supply and removal of air is under consideration, large weights of air must be taken into account. I shall assume that on the average every house of the 600,000 rated for the municipal purposes of London has two fires burning, and therefore two chimneys emitting smoky air, for twelve hours each day, and that each chimney uses and defiles 10,000 cubic feet of air per hour. If these estimates are inaccurate, we can at least ask scientific men to correct them. On these assumptions every "working chimney" delivers 4.2 tons of smoky air per day; every house, on the average, 8.4 tons. We thus obtain the estimate of five millions of tons of smoky air sent up the household chimneys of London in one day. Some allowance has also to be made for the 14,500 factories of London, which are not altogether innocent in the matter of smoke. I have no accurate idea what the allowance should be, but taking a factory chimney as equivalent to thirty house chimneys, we should get an additional two million tons of air fouled with smoke passing up

the factory chimneys; that is, in the aggregate, about seven million tons of air are used per day in London to carry away smoke,* as compared with about a million tons of water to carry away sewage. The cost of dealing with the sewage is about £600 per day. I have of course no means of estimating what the cost of dealing with smoky air would be, but supposing that a ton of dirty air could be "treated" for the same cost as a ton of sewage, the cost of clearing the air of London might be set down at £4,200 a day, equivalent to a rate of 10d. in the pound.

I would mention, incidentally, that to move air is a comparatively cheap matter. An electrically-driven fan will do the day's work of a single chimney, as regards smoky air, at a cost of about a penny, under suitable conditions. A single colliery fan has been made to deliver as much as 200,000 cubic feet of air per minute, and its output therefore amounts to about 10,000 tons a day, or sufficient to carry the smoke of more than 1,000 London houses on the scale mentioned above. Five hundred of such fans would carry the household smoke of the whole of London. It would mean a huge aggregation of power, but London means the same.

These figures show that although the volume of smoky air is vastly larger than the volume of sewage, yet the cost of dealing with it for the purpose of treatment may not be of an altogether different order of magnitude from the cost of the manipulation of London sewage, and the point at which I wish to arrive is, that we are justified in asking practical men of science, as a first question, whether the treatment of smoky air, on a plan somewhat similar to the treatment of sewage, is mechanically possible within reasonable limits or original outlay and current expense.

Limitation of the Analogy.

I have now, I think, traced the parallel upon which I set out, as far as it will safely lead, and beyond this point in the treatment of smoke it would be necessary to diverge from the plan adopted with sewage, both as regards the special method of dealing with smoke and as to the part which the local authorities should take in encouraging and assisting the purification of air.

* A layer of air 60 feet thick over the 75,000 acres comprised within the administrative county of London would weight about 7,000,000 tons. The calculation suggests that on a day of dense fog, when there is very little horizontal movement of air, there is a more or less complete circulation of the air through the chimneys and back again to the streets and houses during the hours when chimneys are active.

I do not suppose that it is possible to establish a few main drains for smoky air corresponding to the main sewage drains, and to use one or two cleansing stations for purifying the air from smoke. I made a rough calculation and concluded that to deal in that way with the smoky air of London would require some forty tunnels of the size of the Underground Railway tunnels to carry away the air, but in the case of air it might be possible to achieve a similar result by a large number of systems on a correspondingly small scale, and the systems might be some of them municipal and some private. A single block of houses might have means for drawing off the smoke from all its fires into a chamber wherein the smoke could be treated, before the fouled air was allowed to pass into the atmosphere, and if such a system were mechanically feasible we should then be able to put a second question to practical men of science, viz., whether it is not possible to completely deposit from the air as it passes on its way the solid particles which form the smoke. It has been shown that sooty particles coagulate under mechanical action, and some years ago Sir Oliver Lodge showed experiments on the deposition of smoke in a closed chamber by means of electricity. Since that time the means of production of electricity on an industrial scale have been greatly facilitated, but no further step has been taken, so far as I know, in the deposition of smoke particles. I should like now to ask whether it is not possible to make a further advance in the direction indicated by Sir Oliver of purifying air from smoke by that means? You will notice that I do not demand that no smoke shall be produced. I think that some people may prefer to pay the cost of abstracting the smoke if they are allowed the free use of open fires, to which, in England, we are so much attached.

The Question of Cost.

If the men of science give us satisfactory answers as to the physical possibilities, the question then becomes one of cost. Suppose that the cost amounts to the equivalent of a tenpenny rate. Would ratepayers be willing to expend a sum of that magnitude for the purpose of eliminating smoke from the atmosphere of London or Manchester?

In considering this aspect of the question it should be remembered that the result, if successful, would have some economies to set down per contra.

A bad fog in London, according to the "Times," may cost £5,000 a day for additional gas alone; to that we have to add the loss due to interference with traffic and other incidental items. I have, myself, no means of estimating the whole cost of a day's fog. I have seen it estimated variously at from £20,000 to £50,000, and the cost of fogs per annum is set, I think by Mr. Rollo Russell, at from three to five million pounds. If any of these estimates be true, the equivalent of a tenpenny rate would obviously be a very cheap one, and to many people, even ratepayers, an agreeable substitute for the smoke of London. Certainly, whatever may be the material damage of a day's fog, the moral and intellectual damage should be reckoned as no inconsiderable addition, and if the indirect results of the dirt of London smoke could be avoided, even an additional tenpenny rate might be found acceptable to a majority of ratepayers.

It ought in fairness to be pointed out that the successful treatment of smoke would not do away with the effects of fog altogether. Under the most favorable circumstances, as regards smoke, there would still be fog, and probably more fog in London and other large towns than elsewhere, on account of the acid fumes among the products of combustion. The fog would be white, and white fog itself would cause serious interference with road, river, and railway traffic as it does with sea traffic now. But the large number of London fogs that are smoke and nothing else would disappear and the avoidance of these and the abstraction of the smoke from the others would very largely diminish the losses attributable to fogs.

Incidental Advantages.

The questions that I have suggested as suitable for being put before practical men of science are two, namely: First, whether it is mechanically and economically possible to substitute for the present system of chimneys a method of collection of the used air of houses by mechanical or thermo-mechanical means, so that it may be subjected to treatment before being delivered to the outside air; and secondly, whether under these circumstances it would be possible to deposit the soot, electrically or otherwise, in some part of the course of the air.

I would like to point out that such a system would have some incidental advantages. It would provide a persistent and calculable system of ventilation that would enable hot water or steam

pipes to be used advantageously much more generally than they can be at present.

The ventilation of a domestic house under existing conditions is very largely dependent upon its active chimneys, and has to be treated accordingly. If one could rely upon the regular abstraction of a definite quantity of air, it would be possible to modify the arrangement in various ways for the general convenience of the household. To revert to my analogy, the sink waste pipe is one of the most useful of household appliances, and a corresponding contrivance for taking away used air would be found after a little use to be similarly serviceable—it might even replace the carbolic sheet for the isolation of inmates suspected of infectious disorder. And not the least among the advantages of such a system must be reckoned the facility it would afford for diminishing the amount of smoke produced independently of the facilities for removing it after production. At the trials in connection with the Smoke Abatement Exhibition, South Kensington, the most effective results were obtained with grates that had what may be called a downward draught, that is, a draught that carried the smoke from the external coal through the fire. To manage a grate of that kind in an ordinary house requires special arrangements, but with the provision of means for the constant abstraction of air, it would be easy to secure these most favorable conditions.

Contribution of Local Authorities to the Solution of the Problem.

I now proceed to consider the share which local authorities might take in obtaining a solution of this problem. Hitherto their powers have been restricted to fining conspicuous offenders, and—for reasons which I need not now detail—the system of penalties for conspicuous failure is not effective; it has been tried for so long that we might now see whether it might not be replaced advantageously by a system of rewards for success. For the sake of definiteness I have set down the contribution of the local authority as equivalent to a tenpenny rate, though it would not seem practicable for them to contribute in the same way as they do to the solution of the sewage question by maintaining a single municipal system. They might contribute effectively by allowing a specific *reduction of rate* on those properties within their area which were so arranged as not to add to the pollution of the atmosphere by smoke.

If the questions which I have mentioned are to be asked, it is essential that they should be put in such a manner that practical men of science may be encouraged to work out effective answers, and for that purpose they must make experiments. In the practical applications of science on the large scale experiments are very expensive, and the only way of getting them performed is to take care that they are remunerative to somebody if successful. In this matter the local authorities could be of great assistance if they were willing to adjust their rating in what seems to me a reasonable manner. At present the incidence of rating is such as to discourage all experiments of this kind. If an enterprising architect were to erect a block of buildings and provide it with means of delivering its used air free of smoke at an outlay of, say, £1,000, with an annual cost of £25 for maintenance, I presume the local authority would reward him for his public spirit by increasing the ratable value of the property on account of the outlay, and thus fine the owner some considerable sum per annum for his rash enterprise. The owner would also be placed in the unfortunate position that whereas by avoiding smoke he had conferred as much benefit upon all his neighbors as upon himself, he would have to pay the whole fine of increased ratal himself, and would still have all the disadvantages of his neighbors' smoke.

I would suggest that instead of pursuing so unreasonable a course, the local authorities might recognize public spirit of this kind by reducing the assessment of a property that, to the satisfaction of its neighbors, as well as of a surveyor or inspector, produced no smoke, so that the rates upon such a property should be decreased by, say, 6d. or 1s. in the pound, instead of being increased. This would afford direct encouragement to practical men of science to design and keep in action means for the prevention of smoke, and would lead to gradual improvement.

In a question which has assumed the proportions of the problem of smoke disposal in our large towns, the possibility of gradual improvement is a very important matter. The suggested action of the local authorities would tend in this direction for two reasons. In the early stages the reduction in the rate would be practically a bounty to those who were willing to make the experiment of effective smoke prevention. It would be a legitimate bounty, because in the earlier stages, assuming that the local authority itself initiated no appliances, the experimenters would bear the expense, though they would not derive any special benefit themselves, and would still suffer from their neighbors' smoke.

Every fresh adherent would, however, diminish the effective amount of the bounty, and also the general pollution of the atmosphere until in the end the distribution of rates would have reverted to its original figure, but on the other hand each householder would have been freed from the disadvantages of his neighbors' smoke.

It would naturally appeal with the greatest force in those quarters where ratable value is high and the advantage of open fires relatively small, and in such places it would be really worth while for practical men to make a serious effort to qualify for the reduction of rate. In the city of London, for example, there must be many properties with very high ratable value, whose facilities for contributing smoky air are already limited to one hot water furnace and a few open fires. For such establishments it would be an experiment on a very small scale to arrange matters to obviate smoke altogether, and satisfy the surveyor or inspector that the property was smokeless and thus secure the reduction of rate. There might be some difficulty at first in establishing a qualification, but it could not be greater than the difficulty of establishing a right to a parliamentary vote. In the course of time the smoke producers would be a few exceptional persons paying exceptionally high rates, a very rational state of affairs; and when the city of London had by the gradual extension of such experiments freed ieself from its own smoke, I think we might safely rely upon the citizens to take care that the indirect economies to which they would be legitimately entitled by their public spirit were not destroyed by the unrestricted smoke production of the surrounding boroughs.

I have made the system of the general collection of smoke by mechanical means for the purpose of treatment the basis of my remarks, but I have already disclaimed any desire for exclusive privileges for that particular form of experiment in the purification of smoky air. If it be feasible on the commercial scale it has the advantage in an especial manner of making successive improvements possible. The smoky air of London is injurious, not only on account of its visible soot, but also on account of the sulphurous acid and other invisible products of combustion which accompany the soot in the first instance. If it be found possible in the first place to deposit the soot particles, attention might next be turned to some means of dealing with the noxious acid fumes, at least, in those cases where they are specially abundant.

In setting down an estimate of the cost of the system as equiva-

lent to a rate, I fear I may alarm some overburdened ratepayers. I therefore hasten to point out that I am not suggesting that the local authorities should levy an additional rate in order that they may experiment upon the mitigation of the smoke nuisance, nor, indeed, that they should necessarily levy any additional rate at all. Of course, if addition is made to the domestic appliances of houses, the householders will, somehow or other, have to pay for them, and, therefore, when the system became complete, the distribution of cost would probably become assimilated to the distribution of ratable charges. But in the early stages it would be sufficient to encourage private and voluntary enterprise by the reduction of rates in the few cases where a qualification could be established, and the additional burden thus thrown upon the large majority of ratepayers not sharing in the direct cost of the experiments for the good of the community would be unimportant.

Such a system would thus be, in the first instance, a direct encouragement to progressive experiments, and in the end would enlist the active support of all those possessing arrangements for avoiding smoke in favor of effective compulsion for those who had not.

To put the questions I have indicated to men of science in this way would be merely a matter of business, and if the questions were so put, I venture to express the confident opinion that the science of the twentieth century would give as satisfactory an answer to the question of the treatment of smoke as the science of the nineteenth has given to the question of the treatment of sewage.

A SEWERAGE EXPERIMENT—THE LIERNUR SYSTEM.

On September 27 a number of persons interested in sewerage problems visited Stansted, Essex, at the invitation of Liernur's English Syndicate, Limited, to inspect the first installation of sewerage on the Liernur principle in England.

Some time ago Mr. W. Fuller-Maitland, Chairman of the Stansted Parish Council, approached the Liernur Syndicate, with the result that the syndicate undertook to carry out the sewerage scheme at their own expense, the local authority only to be required to take it over if after two years the Local Government Board approved of the scheme. Stansted is a scattered village in a hilly district, but the pneumatic system (a correspondent writes) seems

to have worked very well since it came into operation some two months ago. The pumping station—with its receiver, vacuum pump and gas engine—is in the lowest part of the village, the sewage being conveyed there by a network of 4-inch iron pipe about one mile long, with another mile of house connections. The receiver and pipes are kept in a constant state of partial vacuum, so that there is a steady flow, but the full vacuum (about one-fifth of an atmosphere) is applied for ten minutes every morning, which completely clears the house receptacles and sewer pipes, leaving them clean and dry. There is no need for special flushing, disinfecting the manholes, or ventilating shafts.

The work of laying the sewers, etc., was carried out by Mr. E. T. Watts, surveyor to the Stansted Rural District Council, who stated that he was perfectly satisfied with the working of the system, which gave him no trouble. He calculated that the cost would be about 1s. per head of the population per year.—"The Surveyor," October 10, 1902.

CLOTHS OR CLOTHES.

One learns many strange uses and misuses of things at country inns, but let us hope that the following experience related by a friend of mine as having happened to himself is a rare one. He had gone to bed in an Irish inn, bidding the landlady to have him called at eight o'clock. At six, however, next morning she knocked at his door.

"Ye've to get up," she said.

"What o'clock is it?"

"Six, surr."

"Go away, I am not to get up till eight o'clock."

At seven she reappeared. "Indade, and ye must get up now; it's seven." Finding him unmoved at her next return, she said: "Get up, there's a sweet gintleman; there's two commercial gintlemen waiting for their breakfast, and I can't lay the cloth till I have yer honor's top sheet."—"Cornhill Magazine."

"HABIT" is hard to overcome. If you take off the first letter it does not change "abit." If you take off another, you still have a "bit" left. If you still take off another, the whole of "it" remains. If you take off another, it is not "t" totally used up. All of which shows that, if you wish to be rid of a "habit," you must throw it off altogether.

COSMOPOLITAN HEALTH STUDIES.*

By F. L. Oswald, A. M., M. D., Author of "Physical Education," "The Remedies of Nature," Etc.

XV.—SOUTH AFRICA.

The conquest of the Boer Republics is said to have cost England £195,000,000, or nearly a billion dollars, but Southern Africa is worth every penny of its price. It is a natural game-preserve—the grandest of our latter-day world, and an Eden of climatic luxuries.

"Where would you pitch your tent if you had your choice of a permanent home?" I once asked much-traveled Professor Thompson, of the Cincinnati Zoo.

"In Paris, of course."

"Yes; but aside from restaurant inducements—deciding the question by a comparison of natural attractions, I mean."

"Oh, then, in South Africa," said he without a moment's hesitation, though he had seen the Andes and the Alps. "On the upper Orange River," he added, "I have known hunters to camp for ten following weeks in absolutely perfect weather."

That paradise zone extends from Cape Town to the threshold of the tropics, and from the east coast inland, for nearly five hundred miles, to a tableland where the pleasure of sun-baths is marred by the frequency of sand-storms.

The Transvaal stretches a week's journey beyond the Tropic of Capricorn, and here alone settlers of Caucasian origin have been clearly improved by their transfer from a colder to a warmer climate. The average Boer is the physical and moral—if not mental—superior of the average Hollander, athletic, active, jovial, with nothing but his passion for tobacco to betray his descent from a land of narcosis worship. The migration from Rotterdam to Johannesburg has brought him two thousand miles nearer the equator, and also a great deal nearer the ideal of physical development.

Why did the same experiment elsewhere so often lead to a different result? The removal from the shores of the North Sea to the Mediterranean turned Norman giants into Sicilian dwarfs,

*Continued from page 418.

human bears into human weasels. Goths transferred to Spain did not fare much better; but in Algeria the descendants of the Suevi (Zouaves) have at least physically maintained the prestige of their ancestors; some stimulus or other about the climate of Africa appears to counteract the tendency to degeneration.

All Afrikanders are optimists, and it is a curious fact that the same love of mirth and bustle can be traced in the numerous species of our Darwinian relatives; the romping baboon differs from the lugubrious howlers of the South American virginwoods as the laughing, restless Kaffir differs from the languid natives of Peru.

South Africa affords abundant opportunities for studying the habits of primitive races—races not modified by millenniums of migration from the tropics to Behring Strait and south again, but true autochthones, children of the soil, and still plastered with the traces of their evolution from gorillahood to Bushmanhood. Our primitive ancestors, though fond of outdoor exercise, can hardly have been nomads. The South African children of nature are now and then forced by droughts to wander in quest of better pasture-grounds, but wherever agriculture can be made to support human life, they are loath to leave their homesteads, and, if removed by force, often fall victims to nostalgia.

Their philoprogenitiveness (why not agree on a shorter word?) is even more strongly developed, and their youngsters are marvels of precocity; self-willed and self-reliant at an age when Caucasians still cling to apron-strings.

A Hottentot boy of five years can swim—swim or paddle to shore, the first time he is turned loose in deep water, and his parents may wonder how our children contrived to lose that common faculty of young mammals—for kittens can swim before they can see.

But the brain development of these southland babies is altogether too rapid to augur well for its ultimate attainments, for the best germs of the mind ripen slowly—witness the contrast between the cunning of the new-born pig and the helplessness of the new-born puppy.

For all that, travelers have often felt tempted to export juvenile Afrikanders and exhibit them as freaks of nature. On the borders of the Kalahari Desert, Captain Charles Baldwin, F.R.E.S., picked up a two or three year old brat that had been abandoned by a fugitive tribe, and "it often brought the tears in my eyes," he says, "the way that poor little waddler tried to make himself

useful, and in night-time would sit up and grope about for my feet, to ascertain the fact of my survival."

The child-love of South African mothers is encouraged by a strange but well attested circumstance: Nature often grants them exemption from the pains of parturition. A Damaraland squaw went back to work an hour and a half after childbirth, and toiled away as if nothing had happened, though she availed herself of every pause to nurse or fondle the newcomer. Hottentots on the march will hardly slacken their speed to accommodate a frow overtaken by labor; her female friends, however, do what they can to lessen the embarrassment of the event, and will volunteer to shoulder extra burdens to get the mother's hands free.

And if drinking water should not be attainable that night, the mother will makeshift with a handful of bulbous roots. The South African aborigines can endure hunger and thirst like the very camels; their physical vigor, in fact, may be considered a triumph of outdoor exercise and fasting cures.

But for these redeeming features of their sanitary programme it would seem inexplicable how creatures with the digestive organs of a fruit-eater can recover from surfeits that would crapulate a boarhound. Without salt, without pepper, without any trace of a substitute for the peptic stimulants of civilization, a Zulu hunter will devour fourteen pounds of fat meat, besides *entremets* of curds and durrha-bread, then mix a quart of fluid grease with parched meal and leer about for additional supplies.

His dreams may be broken by suffocation fits, but the dawn of the next morning will find him ready for another excursion—ready, too, for a week's fast, if luck should fail to favor his forays.

Irrigation, the last shift of shiftless planters, is rarely practiced while the supply of venison lasts, and a Kaffir's list of game-animals includes about everything from a rhinoceros bull to a rhinoceros beetle. The children of the wilderness do not share their neighbors' prejudice against insect food; a species of migratory locust, the *gryllus devastator* is caught and devoured by millions of bushels, large quantities of the dried surplus are often stored away—not as an alternative of bitter-roots, but as special tidbits, as we would pickle a ton of sardelles.

Dried grasshoppers, ground to powder, are also mixed with meal and served in the form of griddle cakes—perhaps a more digestible, and certainly a more nutritious compound than the mixture of meal and ground beech bark which the Scandinavians substitute for bread in hard winters.

Dr. Moffat admitted that the Hottentots are naturally more temperate than their conquerors; but natural selection may have assisted the precepts of moralists in that respect, rum-guzzling natives of the lower latitudes being apt to depart for still lower regions at an instructive rate of speed.

For tobacco the Bushmen have not much use, and Kaffir scouts often watched their nicotine-shrouded employers with a stare of puzzled curiosity. Like their cousins, the Arabs, the North Kaffirs are very sensitive to afflictions of the olfactory organs, and will work for hours to bury the carcass of a cow that has come to grief in the neighborhood of their kraals. On the whole, however, offal is neglected, but the consequences are mitigated by omnipresent multitudes of insect scavengers—thirty species of ants alone in the shorelands of Delagoa Bay.

Formic acid is not known to have any value as a virus antidote, and there may have been a mere placebo effect about the procedure which the traveler Burton witnessed on the Albert Nyanza, where a victim of serpent bites was dosed with a decoction of boiled ants, and then trotted up and down with the assistance of all his male relatives. The patient, panting and perspiring through every pore, was finally allowed to retire to his cabin, and on the second morning had recovered sufficiently to limp about and relieve the distress of his swollen foot with manipulations of his own.

Influenza has never assumed its ugliest forms in South Africa. A grippe-like complaint has more than once been imported from northern Europe and become epidemic in Cape Town and other centres of Caucasian population, but ended by self-extinction, after flickering about for a month or two. On the warm tablelands of the Transvaal contagious catarrhs are almost unknown, and Dr. Wiegand's explanation of the Russian scourge may possibly be correct. In spring, he says, the foul hovels of the Muscovite boors are saturated with the germs of lung diseases, ready to colonize the country left and right, but in that high latitude relapses of cold weather are frequent, and the floating microbes would be expurgated from the Ural to the Vistula if a process of natural selection had not endowed them with the faculty of extra rapid propagation; they contrive to get housed ahead of approaching blizzards, and thus have developed a degree of virulence that every now and then kindles the flames of international epidemics.

Kaffirs, working in Cape Town factories, are subject to chronic catarrhs, but recover on their return to outdoor occupations;

their passion for grease, too, may act as a prophylactic, like the train-oil enthusiasm of our Greenlanders.

In Dr. Livingstone's time almost all the untamed tribes of South African aborigines practiced polygamy, and a chieftain of his acquaintance ventured to question the possibility of its suppression, but the example of the superior races has now prevailed, and the eastern Kaffirs rarely keep more than one frow—at a time. Divorce formalities are limited to a kick.

The Corsican peasants' league for the prevention of over-population was considered a unicum till Speke and Grant came across a tribe of nomads who dread the birth of twins as an omen of public calamities—famine, probably, to begin with—and tried to mitigate the risk by the queer custom of half-emasculation. The natural rate of increase has never been very high, anyhow, before the arrival of the Boers and their rivals, the Malays, who threaten to crowd out the natives of numerous coast settlements east of Cape Town.

Their mesalliance with Hottentots has peopled those coast regions with paragons of ugliness, the baboon faces of the aborigines being, somehow, less repulsive in combination with a dusky hide. The existence of hordes without any admixture of what foreigners would call tolerably good-looking children or females, is something unheard of in the lands of the northern hemisphere, the steppes of the Calmuck Tartars not excepted, but an indisputable fact in Southeastern Africa. All through Bushmandom it has long been recognized as a matter of course, and does not scandalize Caucasian Afrikanders any more than the frequency of rock-apes.

It cannot be a result of climatic conditions, for the girls of the Boer settlements are comelier than their Netherland cousins. Do the nightmare faces of the Bushfolk betray the closeness of their affinity to chimpanzees? Should it be possible that the metamorphosis has been accomplished ages after the neighbors of the orang-outangs graduated into intelligent anthropoids, and that the natives of Asia have simply got the start on the road of evolution? Richard Burton had a theory of his own, and hints that sexual selection had only a half chance in a country where women are sold like cattle, and that, besides, Hottentot swains do not decide their choice by front-view comparisons.

South Africa is a land of pathological enigmas. The tsetse mystery has not begun to be elucidated by the supposed analogy of serpent-proof hogs. A pig, tackling a rattlesnake, is mechan-

ically protected by its layer of fat, as by a shield; the virus introduced by artificial means or by a penetrating bite, would prove its usual powers for mischief. But the tsetse, fatal to horses, dogs and black cattle, is harmless to man and to all the indigenous mammals of its neighborhood. The investigations of competent zoologists have disproved the belief that the scourge of the veldt deposits eggs that develop under the skin of its victims; like the mosquito, it merely comes in quest of a little blood—perhaps the thousandth part of an ounce—and its attacks on a Capeland buffalo or an antelope amount to that much and no more. But in the act of piercing the skin it introduces a virus that will kill the stoutest Holland bull as surely, if not as swiftly, as a large subcutaneous injection of Brazilian arrow-poison. Eight out of ten bitten horses die, and about six out of ten dogs. But creatures of our species—sensitive European girls, as well as hardy Kaffirs—enjoy a natural immunity from that risk. They would try in vain to court death by a bivouac in a tsetse jungle. A dozen bites would produce only a slight itching.

Apes, goats, camelopards and zebras are equally safe. The *canis pictus,* or hyena hound, raises its puppies in shallow dugouts, close to lagoons where the buzz of the cow-killer can be heard any sunny day in the year.

The marvel, however, is not wholly unparalleled, if it is true that the south European hedgehog will digest a good-sized lunch of cantharides.

Professor Huxley and Charles Darwin tried repeatedly to collect reliable statistics on the physiology of fever immunes, especially the question of their percentage in fair and dark-skinned races. Reports from several camps of the Orange River Railroad seemed to indicate that the yellow Malays are in that respect luckier than the chocolate-colored Kaffirs; a gang of the irrepressible Orientals having enjoyed their usual good health in river-fens where Afrikanders of all breeds were shaken by chills and agues. But it should have been added that the immigrants came from the jungle coasts of the Sunda Islands, while their rivals were natives of the airy uplands—the healthiest districts of the southern hemisphere, some of them. Their abrupt transfer to a river swamp overtaxed their zymotic resisting power, and it would be a fairer test to make Malays work side by side with darkies from the delta of the Senegal.

(*To be continued.*)

THE PLAGUE IN SAN FRANCISCO AND ITS DANGER TO THE COUNTRY.

RESOLUTIONS IN REFERENCE TO THE CONDUCT OF THE HEALTH AUTHORITIES OF CALIFORNIA IN DEALING WITH THE PLAGUE SITUATION, ADOPTED BY THE CONFERENCE OF STATE AND PROVINCIAL BOARDS OF HEALTH OF NORTH AMERICA AT THE ANNUAL MEETING HELD AT NEW HAVEN, OCTOBER 28-29, 1902.

Whereas, bubonic plague has been present in California since March, 1900, information as to the extent of the disease being withheld by the local authorities, no effective measures of restriction having been put into operation, and the history of the outbreak, so far as we can ascertain from authoritative sources, being as follows:

March 6th, 1900, a case of bubonic plague was discovered by Dr. W. H. Kellogg, Bacteriologist to the San Francisco Board of Health, the diagnosis being confirmed by Surgeon J. J. Kinyoun of the United States Marine Hospital Service.

March 7th, the City Board of Health of San Francisco quarantined the whole of Chinatown, pending investigation, the quarantine being removed sixty hours later by order of the Mayor.

March 11th, another death from plague occurred.

March 12th, the City Board of Health, being without funds, attempted an inspection of Chinatown by volunteer inspectors.

March 19th, two more deaths from plague. The Mayor provided $1,000 for inspection and disinfection.

April 4th, another case of plague discovered.

May 2d, a case of plague discovered.

May 13th, a case of plague discovered.

May 15th, a case of plague discovered. Demands were made of the City Board of Health and the United States Marine Hospital Service to suppress the facts. The Surgeon-General of the United States Marine Hospital Service wired advice to make house to house inspection in Chinatown, to disinfect Chinatown, to establish a pest-house and house of observation, destruction of rats, and the employment of Hafkine's antipest inoculation.

May 17th, State border inspection begun by the United States Marine Hospital Service. Transportation companies ordered not

to furnish transportation to Chinese and Japanese except upon certificate of Marine Hospital officer.

May 18th, commercial associations urged the adoption of the Surgeon-General's suggestion, particularly as to the use of Haffkine's inoculation. City Board of Health willing to undertake this work. The City Board of Health officially announced the presence of bubonic plague and calls upon the State Board of Health for aid.

May 19th, house to house inspection begun. Chinese resist. Chinese and Japanese commence to leave the city. No effective restrictions. State Board of Health met in conference with City Board of Health and United States quarantine officer. State Board of Health promises to co-operate.

May 20th, public meeting of the State Board of Health and the City Board of Health and representatives of railroads and mercantile bodies. Railroads and mercantile bodies demand quarantine of the whole of Chinatown. State Board of Health announces that unless this is done the remainder of State will quarantine against San Francisco. Chinatown accordingly quarantined. House to house inspection continued.

May 21st, Surgeon-General of the United States Marine Hospital Service took charge of quarantine measures in and around California. Quarantine effective. Chinese and Japanese population rendered stationary within twelve hours. Governor Henry T. Gage made a report on plague to the Secretary of State of the United States, John Hay.

May 22d, the State Board of Health notified the State Boards of Health of other States of the existence of bubonic plague in San Francisco, and described the measures taken to restrict its spread.

May 24th, the Chinese companies applied for an injunction against the City Board of Health and United States quarantine officer. Bribe of $40,000 offered by Chinese Six Companies to the United States Marine Hospital office, if the facts were suppressed.

May 28th, courts granted injunction prayed for by the Chinese. Quarantine abandoned.

May 29th, case of bubonic plague discovered. Inspection of Chinatown suspended, but resumed by order of the Surgeon-General of the United States Marine Hospital Service.

June 2d, case of bubonic plague discovered.

June 3d, the State Board of Health of California passed a reso-

lution thanking United States quarantine officer for co-operation and assistance, stating that for want of funds inspection could not be continued, and that the whole matter was referred to the Governor, Henry Theophilus Gage.

June 9th, case of bubonic plague discovered. The State Board of Health, A. M. Henderson, acting secretary, reported to other State Boards of Health the number of cases of bubonic plague to that date. Dr. Henderson removed from the State Board of Health. Dr. Hadden appointed to fill the vacancy. Dr. Winslow Anderson appointed to fill the place of Dr. Bazet, whose resignation had also been obtained. Merchants and citizens raised $29,000 to aid the City Board of Health in cleaning up Chinatown. United States Court enjoined local board from molesting Chinese. Attorneys of the Chinese brought a suit of habeas corpus upon the affidavit of a Chinaman that he had not plague, had not been near plague, was prevented from working and was hungry. Chinaman was released. Quarantine dissolved.

June 16th, contributions of Citizens' Relief Committee stopped. Writ issued ordering Surgeon J. J. Kinyoun, United States Marine Hospital Service, to appear before Judge Morrow on a charge of contempt. Kinyoun cleared.

June 17th, Governor Henry Gage, with the State Central Committee and the delegates to the National Convention of his political party, appealed to the President of the United States to stop the quarantine proceedings.

June 18th, quarantine ordered suspended. Three thousand Chinese and Japanese left for various parts of the State.

June 25th, proposition made by United States Marine Hospital Surgeon Kinyoun to employ a special commission of experts from outside of California to investigate the question of the presence or absence of plague. Proposition not entertained.

July 6th, case of bubonic plague discovered.

August 11th, case of bubonic plague discovered.

August 15th, case of bubonic plague discovered. Dr. Ryfkogel, bacteriologist to the State Board of Health, dismissed. He reported positive evidence of bubonic plague. Dr. Ryfkogel had received no salary or pay. A bacteriologist appointed to replace Dr. Ryfkogel declared that the cause of death in the first case investigated by him was due to the bacillus of hemorrhagic septicemia, familiarly known as fowl cholera. In his second case he identified the plague bacillus and so reported. He was thereupon discharged, and another bacteriologist was appointed who main-

tained consistently the diagnosis of fowl cholera in subsequent cases.

Oct. 5th, case of bubonic plague discovered.

Oct. 10th, case of bubonic plague discovered.

Oct. 12th, Secretary of the State Board of Health, Dr. W. P. Mathews, wrote to Health Officer Blunt, Austin, Texas, advising him that no "suspected case" had been reported to him within sixty days. The case of October 10th had been reported to Dr. Mathews by Dr. Williamson.

Oct. 14th, case of bubonic plague discovered.

Oct. 31st, case of bubonic plague discovered.

Nov. 1st, case of bubonic plague discovered.

Nov. 3d, case of bubonic plague discovered. United States quarantine officer asked that an inspector be sent to San Francisco.

Dec. 7th, case of bubonic plague discovered. Surgeon J. H. White of the United States Marine Hospital Service sent to San Francisco. Reported to Surgeon-General presence of plague.

Jan. 6th, case of bubonic plague discovered.

Jan. 7th, Legislature of California meets. A great part of the Governor's message devoted to the plague question. The Secretary of the State Board of Health drafted a bill making it a felony to print, or publish, or to make in writing a report of plague or cholera before the public announcement had been made by the State Board of Health.

Jan. 15th, two cases of plague discovered. Surgeon White, United States Marine Hospital Service, recommended the appointment of a Federal Commission of experts. Drs. L. F. Barker, Simon Flexner, and F. G. Novy appointed.

Jan. 24th, the joint resolution asking for the removal of Surgeon Kinyoun passed the State Senate, but failed in the lower house.

Jan. 28th, the Federal Commission arrived in San Francisco. Rooms for the work of the Commission offered by the Medical Department of the University of California. Before the work was fairly started, the President of the University requested the Commission to vacate in twenty-four hours, as their presence in the University building endangered the State appropriations. Quarters for the Commission were furnished by Mayor Phelan in the City Hall. Governor Gage sent a telegram to President McKinley complaining that an undesired commission had been sent to investigate the health affairs of California, "ignoring the

State authorities, and proceeding in the line with reports heretofore made." Governor Gage hoped that the discourtesy is not intentional. Governor Gage also suggested that the Federal Commission be advised to co-operate with the State authorities and with home physicians and bacteriologists.

Jan. 30th, Hon. Lyman J. Gage, Secretary of the Treasury, replied to Governor Gage, declaring the independence of the Federal Commission, disclaiming the intent of the Treasury Department to be discourteous.

Jan. 31st, the Governor of California sent a message to the legislature, representing that United States Treasury Department had sent a "Commission of experts to make an ex parte investigation" to be "conducted in secret," "the State being denied a hearing," imperiling "the welfare of every citizen and inhabitant of the State." Governor Gage asked legislation by which the State might assume general and unrestrained control over the subject of public health within its borders.

Feb. 5th, case of bubonic plague discovered.

Feb. 6th, case of bubonic plague discovered.

Feb. 7th, case of bubonic plague discovered.

Feb. 10th, case of bubonic plague discovered.

Feb. 12th, case of bubonic plague discovered.

Feb. 14th, case of bubonic plague discovered.

Feb. 17th, Governor Gage sent a telegram to President McKinley complaining that the Federal Commission had not given him an opportunity to meet them from January 28th until February 16th, at which time the work of the Commission was done and the report about ready for transmission. A copy of a letter to the Governor sent by the Commission on January 29th is found on page 25 of the Report of the Governor's Special Committee. The Governor informed the Federal Commission that this letter was never received. On page 26 of the same pamphlet is a copy of the Governor's reply to the Federal Commission. This reply, the Commission says, was not received. Governor Gage asked for a re-investigation by a commission to include three Federal appointees, three State appointees, and one to be chosen by these six.

Feb. 19th, Hon. Lyman J. Gage, Secretary of the Treasury, declined to join in a re-investigation.

Feb. 25th-March 1st. Governor Gage promised to co-operate fully and heartily with the Federal authorities, and appointed five distinguished citizens to visit Washington for the purpose of consultation.

March 1st, report of the Special Commission handed to Governor Gage by order of the Surgeon-General.

March 10th, the Committee from the State of California, in a signed letter to the Secretary of the Treasury, accepted the recommendations of the Surgeon-General, and "agree that the same shall be promptly and efficiently carried out by the health officers of the State of California and the City Board of Health of San Francisco, and .....accept.....the advice and co-operation of Dr. J. H. White, United States Marine Hospital Service."

April 1st, case of bubonic plague discovered.

April 4th, the Special Committee with the State Board of Health began to arrange for the cleansing of Chinatown. In about three weeks the cleansing was begun. Texas threatened quarantine. Surgeon White's advice and recommendations ignored. No cases of plague discovered. The sickness and death rates far below normal. The Surgeon-General was informed by Surgeon White that he believed the sickness and death were concealed, by the collusion of the State health authorities with the Chinese Six Companies. The notification arrangement, according to Sacramento "Bee," was as follows: Cases of sickness among the Orientals to be reported first to the Six Companies, by the Companies to the State Inspector, and by the State official to the City Board of Health and the United States Marine Hospital Service.

May 18th, Surgeon White reported to Governor Gage the evidence of concealment of plague with the evidence of infection in other parts of the State, and suggests a "quiet" investigation of places outside San Francisco.

May 28th, Governor Gage wired Surgeon White notifying him that no officer of the Federal Government had been requested to "participate in an examination, etc., outside the city and county of San Francisco." He said: "Your mere suspicion from the improved health of the Chinese district that the sick are being removed from San Francisco is not only unwarranted as a conclusion, but I know it to be unfounded in fact." Governor Gage offered to send "some one suitably qualified professionally to look over the matter" with Dr. White, but did not send any such person, nor was any investigation made outside of San Francisco.

June 7th, the State Board of Health of California suggested to Dr. J. H. White that the United States Marine Hospital Service should certify to the health authorities that there is no longer any

danger of plague. Surgeon White declined to do this, and made a definite proposition to both the State Board of Health of California and the Governor, providing for the completion of the disinfection of Chinatown and the continued inspection of sickness and investigation of deaths by the United States Marine Hospital officers.

June 8th, disinfection of Chinatown suspended by order of State Board of Health.

June 10th, Surgeon White recalled to Washington.

June 18th to 24th. The Surgeon-General and Governor Gage exchange "congratulations that no cases have been found during the progress of this work, and that the outlook is so encouraging."

July 2d, a Chinese undertaker, mistaking Dr. Blue, of the United States Marine Hospital Service, for a State health official, reported the case of a moribund Chinaman. Dr. Blue and other investigators made a diagnosis of plague in this case. The State officials disputed the diagnosis and ascribed the death to syphilis. Next, three Japanese women were found ill with plague. Two died and one recovered. The two deaths were charged by the State officials to sewer gas.

Aug. 31st, case of bubonic plague discovered.

Sept. 1st, case of bubonic plague discovered.

Sept. 11th, case of bubonic plague discovered.

Sept. 16th, case of bubonic plague discovered. Governor Gage's Special Committee published their report, which concludes: "San Francisco is and has been absolutely free from the disease, and those who said it existed were either mistaken or deliberately misrepresented the facts." To this is appended a report of the State Board of Health, signed by W. H. Mathews, secretary, which concludes: "We take great pleasure in assuring you that plague does not exist in San Francisco, and that it has never had lodgment there, nor elsewhere in California."

Sept. 27th, two cases of plague discovered.

Oct. 10th, case of plague discovered.

Oct. 19th, case of plague discovered.

Oct. 22d, case of plague discovered.

Oct. 30th, case of plague discovered. E. E. Schmitz, newly elected Mayor of San Francisco, addressed a letter to Drs. Williamson, Baum, Buckley, and Leavitt, composing the City Board of Health, removing them from office and appointing in their stead Drs. J. Coplin-Stinson, A. S. Adler, T. A. Rottanzi, and

M. E. Van Meter. The Mayor was enjoined by the City Board of Health, and the old board still remains in office. Funds are not furnished. From this time scanty information is obtainable, no published communication between the United States Marine Hospital Service being available, and those who conspired to suppress the facts being in complete command of the situation.

Nov. 4th, case of bubonic plague discovered.
Dec. 12th, case of bubonic plague discovered.
Feb. 22d, 1902, case of bubonic plague discovered.
Apr. 20th, case of bubonic plague discovered.
May 19th, case of bubonic plague discovered.
May 28th, case of bubonic plague discovered.
May 29th, case of bubonic plague discovered.
July 13th, case of bubonic plague discovered.
July 18th, case of bubonic plague discovered.
July 19th, case of bubonic plague discovered.
July 20th, case of bubonic plague discovered.
July 21st, case of bubonic plague discovered.
Aug. 7th, case of bubonic plague discovered.
Aug. 17th, case of bubonic plague discovered.
Aug. 19th, case of bubonic plague discovered.
Aug. 20th, case of bubonic plague discovered.
Aug. 22d, case of bubonic plague discovered.
Aug. 23d, case of bubonic plague discovered.
Aug. 25th, case of bubonic plague discovered.
Aug. 31st, case of bubonic plague discovered.
$1,000 appropriated to disinfect premises and to kill rats.
Sept. 9th, case of bubonic plague discovered.
Sept. 11th, case of bubonic plague discovered.
Sept. 16th, two cases of bubonic plague discovered.
Sept. 20th, case of bubonic plague discovered.
Sept. 23d, two cases of bubonic plague discovered.
Sept. 26th, two cases of bubonic plague discovered.
Oct. 5th, three cases of bubonic plague discovered.
Oct. 8th, case of bubonic plague discovered.
Oct. 11th, case of bubonic plague discovered.
Oct. 16th, case of bubonic plague discovered.
Oct. 17th, case of bubonic plague discovered.
Eighty-eight cases in all.

And, *Whereas*, Thirty of these cases have occurred since July 13th, 1902, no information as to their origin or exact location having been furnished, no effective steps having been taken to re-

strict the spread of the disease, the City Board of Health of San Francisco being helpless, and the mala fides of the State Board of Health of California having been fully established by the foregoing history, supported by documentary evidence in the possession of this Conference; therefore,

Be it Resolved, That the Conference of State and Provincial Boards of Health of North America views with abhorrence the irretrievable disgrace of the present State Board of Health of California, and pronounces the plague situation in California a matter of grave national concern; and,

Be it Further Resolved, That the National Conference of State and Provincial Boards of Health of North America does hereby advise the various State Boards of Health of the United States to consider the propriety of calling upon the Surgeon-General of the United States Public Health and Marine Hospital Service to arrange at the earliest possible date a joint conference for the purpose of eradicating plague from the United States.

GARDNER T. SWARTS, *Secretary*.

Providence, R. I., Nov. 13, 1902.

FOREIGN PHYSICIANS IN PERU.—Under date of July 18, 1902, Consul Charles V. Herdliska, of Callao, in reply to an inquiry regarding the chances of success for an American physician in Lima, writes as follows:

Before a physician can enter upon the practice of his profession in Peru, he must pass a State examination upon medicine, conducted in the Spanish language. Upon being found qualified, a certificate is issued which entitles him to practice his profession in any part of the Republic. The opportunities for American physicians would seem to be good. Both Lima and Callao contain quite a large American and English colony, and the Peruvians themselves appear to have great faith in the American, English, German and French physicians and surgeons on account of the advanced state of medical science in those countries.

CHILD LABOR.

By P. F. Barbour, A. M., M. D.,
Louisville, Ky.

In a paper read before the Louisville Clinical Society the author said in part: That the growth of cotton manufacturing in the South has created new economic conditions which offer new problems for our consideration. The machinery used has been so perfected as to be almost automatic and the labor required for its direction need not be skilled; in fact in weaving the cheaper grades of cloth the laborer is required only to watch the threads and when they are broken tie them securely and start the machine again.

As the work is not heavy and does not require skilled labor it was inevitable that women and children would be drawn into it and this has proven the case. Such labor is cheap and there has been every inducement for manufacturers to employ women and children.

The greed of human nature is such that whenever possible more and more work is thrown even upon children, and unless one's attention is forcibly called to it the extent to which children are employed, and the grave sociologic, economic and physical dangers, go unappreciated, and great harm will be done to the children—the future men and women of the South—for it is in the South only of all civilized portions of the globe that the slavery of children is still permitted and where efforts in behalf of the innocent and unprotected have been most actively antagonized.

One or two facts may be unknown. First, that the hours of work for children under twelve in cotton mills are often as long as eleven and one-half hours per diem, and in "rush" seasons they may be put on an all-night shift; for such labor the daily wages may be from 10 to 15 cents.

Secondly, that the number of children under fourteen so employed is over 16,000 by a conservative estimate and is rapidly increasing.

The effect of factory labor upon children began to attract attention in England early in this century, and the outcome of the observations was that England and Continental Europe and the northern States of this country passed stringent laws governing the employment of children in factories; public sentiment backs

up enforcement of these laws. But in the Southern States no adequate provision has yet been made for the protection of this helpless class. It would seem that humanitarianism should be paramount to commercialism, but it is not so.

The chief claim of large factories is that child labor is almost necessary to their existence in order to make a profit on the investment. Some of the cotton mills of Alabama in the recent fight made on child labor before the Alabama Legislature virtually threatened to remove from the State unless allowed to employ children at the nominal wages above stated, although it is said dividends upon such property average 25 per cent. and in some cases reach 100 per cent.

Some families are almost entirely supported by the children, and employment of the father is conditioned upon his having one or more children who can be "worked" in the mill for ten to eleven and one-half hours per day.

It is very easy to foretell that labor of the children will be brought into competition with that of the father and the result will be a reduction in the earning power of that father, an economic fact which seems not to be appreciated by the workingman.

A potent objection to the employment of children is that they are thereby prevented from obtaining that free education which is almost a birthright in northern States. This absence of educational advantages will result in the child growing up ignorant and untrained; and eventually, trained, experienced and high-priced workmen will have to be imported for factories which may spring up and need trained artisans.

The negro in the South is grasping every opportunity for education. The white man of the working classes is sucking the life-blood out of his children by working them in mills and by denying them education. It does not require a prophet to foresee a future which will be a curse to the white population of the South.

The moral character of factory girls is not necessarily bad, yet all who have seen anything of factory life, even among older and more mature girls, will recognize its debasing influence. How much greater the danger in girls and boys of ten or twelve years of age who must develop up to puberty in such an environment!

Combine ignorance, lack of education and home influences with youth and the wonder is that more crass immorality does not exist under such unfavorable conditions.

It is the boast of many factories that they "have done so much for their employees," libraries, schools, natatoria, etc., having been

erected for them, but these things will be found wanting when weighed against the loss to the children from the hard physical conditions under which they labor. To quote from an able article on "Child Labor in Alabama," by Mrs. Irene McFayden:

"Dr. Torrop is the chief authority in Lancashire, England, on the subject of child labor, having had thirty years' experience as a medical man in the textile district. He says that a promising child who is allowed to work even a few hours a day often degenerates before he is thirteen. He noticed a certain amelioration in health when the half-time age was raised from ten to eleven, for with every year the child gained a little more of resistance to unhealthy conditions.

"The whole population, he says, has been stunted by too early toil, and the enfeebled condition of the operatives has become a source of danger to England's future.

"The normal stock of the Lancashire folk is among the strongest and finest of English peasantry, but four generations in the mills from early childhood has entirely changed and depreciated the type. They look a different race of beings; cramped life and stunted growth show themselves whichever way you turn—practically the whole operative class bears traces of the blighting effects of premature toil.

"An investigation was made in the schools during 1899 into the health, height and weight of 1,800 half-timers who had been in the mills a year or more, as compared with that of 2,000 full-day scholars. Only 15 of the half-timers looked healthy, and they were the children of parents from the rural districts. No one could fail to pick out the mill children at a cursory glance. The result showed a deficiency of 12 pounds in weight below the average child of working parents and 22 pounds below the child of the wealthy classes. The differences in growth and height were 5 and 7 inches respectively."

Who can estimate the mental, moral and spiritual loss to the child indicated by those figures?

In the last few years much study has been given to the effects of fatigue upon the child. The deleterious results of overwork, mental or physical, have been noted in various ways in the growing child—studies which show the loss of mental concentration from being in school a few hours each day, with its diversified interests.

More apparent are the effects of fatigue upon the physical well being of the child. We know empirically that fatigue lessens very

markedly the power to resist infections, and a closely maintained attention is just as potent a factor in producing fatigue as is physical work.

Another factor to be noted is the atmosphere in all manufactories, especially of those of cotton or woolen goods and tobacco. The constant breathing of factory dust is a cause of tuberculosis in an alarming number of cases. Those who have had much clinical experience in this city will have been struck with the frequency of tuberculosis among such operatives. Now put children at continuous labor in such an atmosphere and the high mortality is easily explained.

"Dr. Barwise, medical officer for Blackburn, England, showed that 29.9 per cent. of deaths among cotton operatives occurred between the ages of ten and twenty-five, while among the common laborers the percentage is only 6.8." (McFayden).

While the physician cannot often accomplish large reforms in existing conditions, his personal work with his clientele can influence private opinion and so aid in the enforcement of laws for the protection of child labor.

"Try to conceive," says the investigator above quoted, "how much joy and gladness and health and childish delight and hope have been lost in those 22 pounds avoirdupois and 5 or 6 inches. Then you will begin to get the measure of our continued offence against our little ones in these closing months of the nineteenth century."—"Pediatrics," September, 1902.

PET ANIMALS AND CHILDREN'S DISEASES.

It is wise to keep in the minds of guardians of children the possibilities there are for infection taking place from the animals with which children are allowed to play. It is generally conceded that the domestic cat may be the bearer of diphtheria and scarlet fever, and probably also of some other of the infectious fevers commonly known as children's diseases. From certain of these diseases, as diphtheria and scarlet fever, the cat may suffer *in propria persona*. Even though cats are perfectly well, they may carry infectious materials on their fur, acquired from contact with the animals from infected houses. It is an important direction in case of contagious illness in a family, to forbid the entrance of the cat into

the sick room, for its snuggling habits may make its fur very favorable fomites of the disease. This is a matter often absolutely unthought of by the family and neglected by the medical attendant, though many other less necessary precautions for the protection of neighboring families are cheerfully and faithfully taken.

The supposedly harmless dog is scarcely less dangerous as a possible carrier of infection than the cat. Diphtheria has been transferred from house to house by this means, and probably also scarlatina, measles and whooping-cough. There is a tradition in certain parts of Europe that this last disease is frequently conveyed in this way. Dogs used to be considered immune to tuberculosis. At one time, because of this presumed immunity, it was even suggested that canine blood serum should be used as a therapeutic remedy for the cure of human tuberculosis. About four years ago, however, the distinguished French bacteriologist, Nocard, whose work in veterinary medicine at Alfort has given him a world-wide reputation, showed that many dogs suffer from tuberculosis. The lesions are not always in the lungs. Not infrequently there are tuberculous sinuses extending from certain of the bones of the face into the nose. In these cases the tubercle bacilli swarm in the nasal discharge. Now that we no longer credit Koch's declaration of the absolute distinction of tubercle bacilli for various animals—and Behring and Ravenel have shown that the old idea of the inter-communicability of human and animal tuberculosis is the only safe opinion as a working basis for prophylaxis—these facts should make us wary of too free contact of dogs with children, especially in families of known tuberculous predisposition.

The dog is the host of the adult form of the cysticercus cellulose—the familiar hydatid cysts which statistics show are growing to be more common throughout the civilized world. It is from the domesticated animal afflicted with the tape-worm form of the parasite that the eggs come which, having gained an entrance into the intestinal tract of human beings, find their way in the intermediate cystic stage into almost any of the human tissues. Hydatid cysts are especially common among the Icelanders, who live on very intimate terms with their dogs, not infrequently permitting the animals to share their beds in the winter time.

The cause of ozena is as yet undecided. Many bacteria have been found, but none of them are surely pathogenic for the affection. Perez, in the May number of the "Annals of the Institute

Pasteur" (of Paris) for 1891, advances the claim that the bacillus which causes the disease comes from the dog. He has shown that a bacillus can be found in the nasal discharge of ozenic patients which resembles a microbe found in most dogs. He was able to trace the history of patients afflicted with ozena, and found that many of them had habits of familiarity with dogs that made them especially liable to contract the disease, if it is really of canine origin.

The uncleanly habits of the dog in turning over every kind of animal material with its nose makes it eminently undesirable that it should be allowed to lick the face or hands. This is particularly true for little children, who are so much more susceptible to infections of various kinds. There are, especially in city life, almost endless possibilities for dogs having on their noses the ova of various intestinal parasites and many forms of intestinal bacteria that are contained in the dejecta of animals encountered on the street. If we are insisting on special precautions with regard to food contamination by flies because of the habits of those domestic pests with regard to excrementitious material, it is almost more important that dogs should not be allowed to become distributors in the household of at least as dangerous material in considerably larger quantities.

Besides cats and dogs, birds constitute the third class of animals with which children are likely to be intimately in contact. Parrots are often fondled and allowed familiarities that may lead to the spread of disease, though in this case, as a rule, only if the bird itself is affected. Parrots and other domesticated birds quite often die of tuberculosis. The discussion as to the identity of avian and human tuberculosis is not yet definitely settled. Nocard's work on the subject at Alfort, published some two years ago, seemed to show that the diseases were at least closely related. It has been noted that chickens kept near sanitaria for the treatment of tuberculosis suffer more frequently from avian tuberculosis than do fowls under other circumstances and especially if the restrictions with regard to expectoration are relaxed when the patients are outside the institution. Parrots suffer from a specific disease called psittacosis (from the Greek name for the bird) which is intensely contagious for human beings. It was first noticed in Paris in 1897, when an epidemic of over fifty cases of the disease was observed. Over one-half of the cases proved fatal to the persons afflicted, and the original contagion was in every case traced to a shipload of parrots recently introduced into

the city, many of the birds having the signs of the disease when brought in.

It is evident then that there is need of greater care than is at present exercised in order to protect children from the dangers of infections carried by animals. Very special precautions are needed whenever animals are ailing. It is advisable that in households where there are several children, sick animals should not be treated at home, but should be transferred to a veterinary's care. Animals should be kept out of sick rooms and in times of epidemics should not be allowed to wander from house to house. Dogs, after having been taken for walks on crowded streets, should be carefully washed before being allowed to associate with young children. It would seem advisable too to limit the play of children with pet animals more than is at present the custom. The whole subject is worthy of the most careful attention.—"Archives of Pediatrics," September, 1902.

HIGHWAY COMMISSIONERS' ESTIMATE OF THE VALUE OF SHADE TREES.

A man in Peekskill has amazed the municipal authorities of that town by demanding $3,000 for "a few old trees" of his which they cut down in the course of something which they called "road improvement." Naturally enough, the Highway Commissioners regard the claim as absurd, and "Supervisor James H. Haight," it is reported, "thinks that $3,000 would buy a great many elms or oaks or any other kind of denizens of the forest." Of course he thinks so—all officials of his class do, and marvelous care is taken in most American cities to elect only men with opinions like his to the position he holds. If Mr. Haight were once compelled to see how many trees of the size of those cut down he could plant at the side of a highway for $3,000 he might change his mind on the subject. Timber is one thing and trees living and growing in places where they are wanted are things of quite another sort. So long, however, as a large part of each community holds that $3,000 is a preposterous value to place on "a few old trees," shaded streets are out of the question.

MILK POWDER IN SWEDEN.

Although I have already made several short reports on this subject, in view of the numerous inquiries for additional information by interested persons in the United States, I feel justified in again referring to it.

In an interview to-day, the inventor, Dr. E. M. Ekenberg, said that, as American letters patent had not yet been issued, he could not now explain the method of manufacture. He also said that he had not sold his rights for the United States, and that Americans desiring to negotiate for same should address him direct. The doctor hopes that he will soon be ready to show a large model of his invention in operation in a Swedish creamery, and under certain conditions is willing to exhibit a similar apparatus in America.

There will be two patents issued—one for the method itself and one for the apparatus. Dr. Ekenberg explained that chiefly skimmed milk would be utilized, as powder made from pure milk does not keep so well. The maximum cost of production (for coal, oil, and labor), he said, is 1 öre per liter (about 1 cent per gallon) of skimmed milk exsiccated.

As to its chemical composition and the profit considered possible to be derived from the manufacture of milk powder in Sweden, I quote the following article which recently appeared in a Gothenburg newspaper:

"By improvement of the milk separators, the skimmed milk is now nearly entirely free from fat, and is therefore less useful for many purposes. During the year 1900, the total quantity of unskimmed milk received and weighed in by the creameries in this country amounted to 769,607,973 kilograms (1,696,677,737 pounds), from which was produced 26,114,018 kilograms (57,570,963 pounds) of butter and 7,434,455 kilograms (16,390,000 pounds) of cheese. Besides this, the creameries sold 72,672,603 kilograms (160,214,000 pounds) of unskimmed milk. The quantity of skimmed milk corresponding to the butter produced is about 600,000,000 kilograms (1,322,760,000 pounds). If this were transformed into milk powder according to Dr. Ekenberg's method, 60,000,000 kilograms (132,276,000 pounds) of milk powder would be produced. The composition of the milk powder is, according to a statement which Commercial Chemist John Landin made in a lecture before the Swedish Technological Students' Club, on the average, as follows:

	Per cent.
Albuminous matter	36
Sugar of milk	49
Fat	1
Milk Salts	7.5
Moisture	6.5

"If we, from a nutritive point of view, pay attention only to the albuminous matter, we find that 1 kilogram (2.2046 pounds) of milk powder equals 1.8 kilograms (2.48 pounds) of boneless meat from neat cattle, which usually contains, on the average, 20 per cent. of albuminous matter and 70 to 75 per cent. of water. The white of an egg contains about 12.6 per cent. of albumen and 85.7 per cent. of water; therefore the nutrimental value of the milk powder is nearly three times as great as the white of an egg. Owing to the large quantity of sugar in the milk powder, and the milk salts, which are physiologically important in the formation of the blood, the real value is comparatively still higher. At a price of 2 to 3 öre per liter (2 to 3 cents per gallon) for the skimmed milk, it has been stated that the milk powder can with good profit be sold for 70 öre per kilogram (8.58 cents per pound), and this price is likely to be paid, because the price of skimmed milk in France, England, Belgium, and parts of Germany is above 7 öre per kilogram (1.9 cents per 2.2046 pounds), and 1 kilogram of milk powder dissolved in water will yield 10 kilograms of milk of the same composition as the skimmed milk.

"The whole yearly output of skimmed milk from our creameries, corresponding to 60,000,000 kilograms of milk powder, would, utilized in this form, represent a value of 40,000,000 kronor ($10,720,000), or more than the value of our whole yearly export of butter, which in 1900 was 36,960,230 kronor ($9,905,341).

"Among general uses for the milk powder have been mentioned: For bread (instead of using milk); for making puddings, sauces, etc., for mixing in chocolate, preserves, cakes, biscuits, confectionery, etc. It would also be an important article of provision for the army and navy, for prisons, poorhouses, hospitals, and other public institutions."

I am not in a position myself to make an estimate of the value of the invention, nor can I vouch for the correctness of the above calculations as to the commercial value of the milk powder.

ROBERT S. S. BERGH,
Consul.

GOTHENBURG, May 29, 1902.

COFFEE.

Apropos to the profusion of ostensible contributions to the religious newspapers now running, purporting to be on the injurious effects of coffee, but in reality the device of an advertiser who is permitted the use of such means to impose upon readers, the "American Journal of Pharmacy" for August contains a particularly excellent "outline" of the history, commerce and properties of coffee, by William G. Marshall, in part as follows:

It is an interesting fact that the great table beverages—coffee, tea, cocoa and yerba mate (also kola and guarana)—agree in having in their composition the alkaloid theine (caffeine), or the analogous one, theobromine in cocoa. All have also tannic compounds, and in each the taste is principally due to extremely small quantities of essential oil. Richter gives the percentages of theine as follows:

In beans and leaves of coffee, 1-2 per cent.; in tea, 2 to 4 per cent.; in yerba maté, 5 per cent.; in guarana, 5 per cent. According to Payen, cocoa contains 2 per cent. theobromine. Reports of analyses vary much, but there seems to be no doubt that coffee contains less of the alkaloidal principle than any of the other beverages.

In the United States coffee is an extremely popular beverage. It is estimated that about 70 per cent. of our people are habitual coffee drinkers. As a rule we use a decoction of only one-half the strength of that used in Brazil, France, Turkey and some other countries. As used in those countries it is believed to be injurious to the nerves and stomach, but the weak decoction used here is non-injurious, but rather beneficial. It cheers and refreshes and gives zest to other foods. The caffeine is mildly stimulating and has a restful effect upon body and mind and tends to restore them to normal condition after they have undergone exertion. The most important effect of coffee is its tendency to diminish the waste of tissue which is going on at every moment, and as Dr. Hutchinson says, "it consequently permits the performance of excessive labor upon an economical and inadequate diet." Laborers are great coffee drinkers, and the military departments of many governments give coffee a place in the regular rations of army and navy.

Dr. Kane says of the use of coffee during his Arctic explorations: "After repeated trials the men took kindly to coffee in the morning and tea in the evening. The coffee seemed to continue

its influence throughout the day and they seemed to grow hungry less rapidly than after drinking tea, while tea soothed them after a day's hard labor and the better enabled them to sleep. They both operated upon fatigued men like a charm, and their superiority over alcoholic liquors was very decided." Temperance advocates would gladly see coffee displace beer, rum, whiskey, etc.

Coffee contains less astringent principle than tea and consequently tends less to retard the action of the bowels, a tendency which is still further diminished by the aperient effects of the volatile oil. Von Liebig's investigations show that coffee is valuable in increasing, when necessary, the secretion of bile. On the other hand, when bile is superabundant the use of the beverage should be suspended. Occasionally coffee gives heartburn or other forms of indigestion, or causes sleeplessness; but this is generally due to an unwise or untimely use of it.

With tobacco, opium, alcoholic liquors and some other materials our desire will not admit that plenty is enough. Take a little, the system hints for more; take more, it asks for more, then demands more, insists on more and pleads for more until, figuratively speaking, one becomes a mere skinful of nicotine, or a see-saw from dreamland to despair, or, like Duke Clarence, is drowned in a butt of Malmsey. But with coffee, tea and cocoa, as with water, enough is enough in nearly all cases, and victims of these beverages are rare. I have heard of tea-topers and coffee-topers, but have never known one.

Notwithstanding the scare advertisements of health-substitutes for coffee, there is no cause for apprehending danger to the race at large from coffee-drinking. After generations of almost universal coffee-drinkers, our own times see men of gigantic intellect in all realms of activity; our athletes are able to make sudden bursts of effort equal to any in history, and our soldiers acquit themselves manfully in fatiguing campaigns in torrid climes. It is not noticeable that physicians taboo the use of coffee at their own tables. The life insurance companies, constantly warring against all that lessens longevity or conduces to abnormal organs, nerves and actions, seem content to accept the use of coffee as one of the ordinary elements of everyday life.

Among the adulterations are chicory root, dandelion root, acorns, etc. Some years ago imitation coffee beans were molded from flour, bran, etc., and used to adulterate the unground coffee. Chicory root, mogdad or negro coffee (the seeds of *cassia occidentalis*), the seeds of several other species of *cassia*, the seeds

of the wax palm, the seeds of several species of *astragalus*, roasted dates and figs are common substitutes for coffee, and there are many others. It is an interesting fact that some substitutes are in use in even the great coffee region; as, for instance, the seeds of the wax palm in Brazil. None of the substitutes contains caffeine.

MEDICAL EXCERPT.

INVESTIGATIONS OF THE ACTION OF SUBLAMINE (ETHYLENE-DIAMINE-SULPHATE OF MERCURY) AS A DISINFECTANT.—Dr. M. Blumberg (Muenchener Medicinische Wochenschrift, September 16, 1902) describes in detail the experiments reported at last year's Surgical Congress in Berlin, and announces the results obtained from practical applications of Sublamine.

He calls attention to the importance of selecting the mercurial salt having the greatest power of tissue penetration, which, as his experiments have demonstrated, is Sublamine. Furthermore, corrosive sublimate frequently causes eczemas of the skin; and exact experimentation has shown that the very slightest roughness, the most insignificant scaling of the skin, make an efficient redisinfection more and more difficult. As Schleich, Gottstein, Haegler and others have insisted, a good condition of the hands is the first desideratum for efficient sterilization; and Sublamine, even in very concentrated solutions, in which sublimate cannot be employed at all, does not attack the skin.

Sublamine has been used by Prof. Kroenig in his extensive operative work, in all his laparotomies and other operations, for the disinfection of the hands and skin, and the constant employment of Sublamine left the operator's hands in irreproachable condition Prof. Kroenig authorized him to publish the following statement: "Prof. Kroenig uses Sublamine in his clinic for the disinfection of the operator's hands and the patient's skin in strengths of from 1:1000 to 1:500. Whenever the hands have been in contact with suspicious material, the concentration is increased to from 1:300 to 1:200; and no irritation of the hands has ever occurred. Besides this, the silk employed for sutures is boiled in a watery 1:300 Sublamine solution, as in the Kocher method."

HAND DISINFECTION.—Dr. H. Fueth, Assistant in Prof. Zweitel's Gynæcological Clinic at Leipzig University, in a "Contribu-

tion to the Subject of Hand Disinfection" (Centralblatt für Gynæcologie, September 27, 1902), details the excellent results obtained from four series of animal experiments made with ethylenediamine citrate of mercury. The hands were infected with a virulent culture of tetragenous organisms (the method is given in detail), disinfected with soap spirit (by Mikulicz's process), and the skin scrapings administered to some guinea pigs by intraperitoneal injection; they all died from tetragenous infection, as did some control animals. The same process was employed previous to and after disinfection with mercury citrate ethylenediamine, but none of the animals developed tetragenous.

The following discussion of this paper took place:

Dr. Graefe asked if mercury ethylenediamine citrate is identical with sublamine.

Dr. Fueth answers that sublamine is mercury ethylenediamine sulphate. It has been chosen because it can be prepared in pastil form, this cannot be accomplished with the citrate.

Dr. Graefe: I have been very glad to employ sublamine. In contrast to corrosive sublimate, my hands stand it very well, and I do not get eczemas from its use.

Dr. Zweifel, replying to a query as to the cause of the comparatively high cost of sublamine, states that it is due to the fact that the ethylenediamine contained therein is an alcohol derivative.

Dr. Kroenig: I think that the preparations demonstrated tonight very beautifully illustrate the value of animal experimentation in the question of hand disinfection. I cannot acknowledge the cogency of Schaeffer's objection that the animal experiment needlessly introduces into the question a new factor—the virulence of the bacteria employed. Virulence is indeed a variable quantity in different tetragenous cultures, but this is of no importance, since all biological experiments are comparative only. This is a fact that cannot be too much dwelt upon. In all our experiments, therefore, where it was in any way possible, we have only compared results which were obtained with the same tetragenous cultures. Schaeffer's criticisms seem to me to have the less weight, inasmuch as not only does the virulence of the bacteria vary from culture to culture, but also the resistance and other conditions; a fact which has perhaps been taken too little into account in previous experimentation.

I believe I can claim that our series of experiments are well calculated to solve those questions which are of importance to the clinician. For, since it has been abundantly demonstrated that

complete germ freedom of the skin is an impossibility, the practitioner wants to know the method by which his hands, contaminated with infectious material, may be so sterilized as to reduce the danger of infection to a minimum if a second operation should be necessary. Our experiments, as Fueth has demonstrated, show plainly that a purely mechanical disinfection, even with Schleich's marble soap lately so highly advocated, is entirely insufficient.

It is a fact, as Dr. Graefe has stated, that sublamine is dearer than corrosive sublimate, but in practical employment this is compensated for by the fact that no alcohol is employed, as is the case with the Fuerbringer method.

Dr. Brumm: I think that we must leave Fuerbringer the credit of having introduced a disinfection method which is one of the best we have. I am quite ready to admit that sublamine may be several per cent. better, that the hands are left in a nicer condition, and that it is more efficient than the older drug. But the Fuerbringer method is an excellent one as compared with that by means of marble dust and green soap.

Phillips' MILK OF MAGNESIA is a unique preparation of one of the most effective antacid and aperient medicines, pre-eminently eligible for sour stomachs of infants and children and, in larger doses, equally available for adults.

WINE BATHS.

An American traveler, in the streets of Paris, seeing the words, "Wine-baths given here," exclaimed:

"Well, these French are a luxurious people!"

Then, feeling that he could afford whatever anyone else did, he walked in and demanded a "wine-bath."

Feeling wonderfully refreshed after it, and having to pay five francs, he asked, in some astonishment, how a wine-bath could be afforded so cheaply. His able attendant, who had been a slave in Virginia, and enjoyed a sly bit of humor, replied:

"Oh, massa, we just pass it along into anudder room, where we give baths for four francs."

"Then you throw it away, I suppose?"

"No, massa; den we send it lower down, and charge three francs a bath. Dar's plenty of people who ain't so berry particular, who will bathe in it after this, at two francs a head. Den, massa, we let the common folks have it at a franc apiece."

"Then, of course, you throw it away?" exclaimed the traveler, who thought this was going even beyond Yankee profit.

"No, indeed, massa!" was the indignant reply, accompanied by a profound bow; "no, indeed, massa, we're not so extravagant as dat comes to. We just bottle it up den, and send it to 'Meriky for champagne."—"National Advocate."

THE THERAPEUTIC VIRTUE OF A RED SHIRT.

An amusing instance of the occasional impotence of mind when confronted with matter is related in "Lyon Médical" for October 5th. It was the case of a young man who suffered with occasional hæmaturia among other troubles. The red stains on his shirt drove him to a state bordering on madness. Half in jest, the physician, who signs himself "P. A.", suggested that he should wear a red shirt. The young man acted on the suggestion, and his mental trouble disappeared.—"New York Medical Journal."

MRS. EDDY AND COMMON SALT.

Mrs. Eddy, she of the brilliant intellect and luminous diction, recently enriched the world with the following important item of information: "To quench the glowing flames of falsehood, once in about seven years I have to repeat this: that I use no drugs whatever, not even coffee, tea or red pepper, though every day, and especially at dinner, I indulge in homeopathic doses of common salt." Dr. Sweringen thus comments on the above in the "Chicago Clinic": "I cannot understand why Mrs. Eddy should indulge in common salt even in homeopathic doses, since in 'Johr's Manual of Homeopathic Medicine,' of the edition of 1838, four and a half pages are devoted to the effects of common salt. Its mental effects are described as follows: 'Melancholic sadness, with searching for many unpleasant things, much weeping and increased by consolation, sorrowfulness about futurity, anxiousness also during a thunder-storm, chiefly at night, indolence, aversion to talk, joylessness and disinclination to labor, hasty impatience and irritability, easily frightened, hate of former offenders, fretfulness and disposition to angry violence, inclination to laugh, alternation of fretfulness and hilarity, great weakness of memory and forgetfulness, thoughtlessness and mental dissipation, misusing words in speaking and writing, inability to reflect and fatigue from mental exertion, awkwardness.' These are the effects which homeopathy attributes to common salt, which, if correct, will account for some of the idiosyncrasies, eccentricities, hallucinations, delusions, illusions, and peculiarities of Mother Eddy. I should advise her not to eat any more salt, even in homeopathic doses. It will certainly ruin her mental and physical constitution.

We now know the cause of her 'thoughtlessness and mental dissipation and misuse of words in speaking and writing.' It is the use at dinner of homeopathic doses of common salt. Perhaps, if she should cease the eating of common salt, she would be better able to explain satisfactorily the occult, metaphysical intricacies of Christian Science." In our opinion, not only common salt, but every bit of food these latter-day lunatics take is a direct contradiction to their tenets and a refutation of their belief in the non-existence of matter. But who would expect logic and consistency from lunatics?—"Merck's Archives."

She was newly married, and did not know a little bit about either housekeeping or shopping, and she was giving her very first order. It was a crusher; but the grocer was a clever man, and was used to all kinds of orders and could interpret them easily.

"I want two pounds of paralyzed sugar," she began, with a businesslike air.

"Yes'm. Anything else?"

"Two tins of condemned milk."

"Yes'm."

He set down pulverized sugar and condensed milk.

"Anything more, ma'am?"

"A bag of fresh salt. Be sure it is fresh."

"Yes'm. What next?"

"A pound of desecrated codfish."

He wrote glibly "dessicated cod."

"Nothing more, ma'am? We have some nice horseradish just in."

"No," she said, "it would be of no use to us; we don't keep a horse."

Then the grocer sat down and fanned himself with a patent washboard, although the temperature was nearly freezing.—"New Jersey Mirror."

A GOOD EXAMPLE.

An excellent reply was that once made by a Yankee pilot to the owner of a Mississippi River steamboat.

The boat was at New Orleans, and the Yankee applied for the vacant post of pilot, saying that he thought he could give satisfaction, provided they were "lookin' for a man about his size and build."

"Your size and build will do well enough," said the owner, surveying the lank form and rugged face of the applicant with some amusement, "but do you know about the river, where the snags are, and so on?"

"Well, I'm pretty well acquainted with the river," drawled the Yankee, with his eyes fixed on a stick he was whittling, "but when you comes to talkin' about snags, I don't know exactly where they are, I must say."

"Don't know where the snags are!" said the boat-owner, in a tone of disgust; "then how do you expect to get a position as pilot on this river."

"Well, sir," said the Yankee, raising a pair of keen eyes from his whittling and meeting his questioner's stern gaze with a whimsical smile, "I may not know just where the snags are, but you can depend upon me for knowin' where they ain't, and that's where I calculate to do my sailin'."—"Youth's Companion."

HARVEST OF FRENCH WINE AND CIDER.

A few days ago (U. S. Consul Haynes, Rouen, July 28) the French Minister of Agriculture published the estimate of this year's wine harvest. Indications in fourteen of the eighty-seven departments of France point to a good harvest; in forty, fairly good; in twelve, passable; in eight, ordinary; in the other thirteen departments, the vine is not cultivated.

"L'Agriculture Nouvelle," in commenting upon the report, says:

If the figures are compared with those of last year's harvest, which gave 58,000,000 hectoliters (1,532,186,000 gallons), it is easy to see that the production of the present harvest should, arithmetically, be not far from 45,000,000 hectoliters (1,188,765,000 gallons), if the temperature continues normal. If the stock on hand at present is counted, this quantity will be sufficient to supply the needs of our own consumption until next year's harvest.

It is generally believed that the production of cider will hardly be more than half of a good harvest. This is especially disappointing, in view of the fine spring, but the intemperate weather during June destroyed all hope. In this department (Normandy), which is considered the home of the apple, and in Maine-et-Loire and Bretagne, the yield will be very poor, apples dear, and the production of cider small.

The harvest of pears, from which cider is also made, will also be about half of the average.

Consul J. C. Covert reports from Lyons, August 4, 1902, that he is asked to obtain prices for cider apples per 1,000 kilograms (2,205 pounds), delivered at Brest, Nantes, or Havre, duty paid in France.

THE PROGRESS OF CREMATION.

As shown by an epitome of the statistics given in "The Lancet" of July 5, by Sir Henry Thompson, there are seven crematories in Germany, and the total number of incinerations in 1901 was 693. In the seven institutions of England there were 445 incinerations. In the 24 crematories of the United States the following figures are given:

No.	*Location.*	*1901.*	*Total from Commencement.*
1.	Fresh Pond, N. Y.	654	4,557
2.	Buffalo, N. Y.	50	534
3.	Troy, Earl Cemetery, N. Y.	19	166
4.	Swinburne Island, N. Y.	3	114
5.	Waterville, N. Y.	1	39
6.	St. Louis, Mo.	141	1,195
7.	Philadelphia, Pa.	119	1,037
8.	San Francisco, "Odd Fellows," Cal.	666	2,201
9.	San Francisco, "Cypress Lawn," Cal.	91	723
10.	Los Angeles, Cal.	65	552
11.	Boston, Mass.	171	.....
12.	Cincinnati, Ohio.	89	736
13.	Chicago, Ill.	182	877
14.	Mount Auburn Cemetery, Mass.	119	169
15.	Pittsburg, Pa.	24	239
16.	Baltimore, Md.	20	200
17.	Lancaster, Pa.	2	101
18.	Davenport, Iowa.	29	162
19.	Milwaukee, Wis.	45	223
20.	Washington, D. C.	33	149
21.	Washington, "Le Moyne," D. C.	1	43
22.	Pasadena, Cal.	46	158
23.	St. Paul, Minn.	20	76
24.	Fort Wayne, Ind.	5	18
	Total.	2,605	14,265

Gathering the obtainable figures together, we find that the following were the incinerations in 1901:

Country.	*No. Crematories.*	*No. Incinerations, 1901.*
Germany	7	693
England	7	445
Italy	22	243*
Switzerland	3	144†
Sweden	2	....
Denmark	1	34
Paris	1	297
United States	26	2,605‡
Total	69	4,461

*In 12 only. †In 2 only. ‡In 24.

It is gratifying to find that in our country there are more than twice as many incinerations as in all the rest of the world combined, and that the number everywhere is rapidly increasing.

In Germany a petition, signed by over 3,000 medical men, has been presented in the Reichstag to render compulsory the cremation of those who have died of infectious disease. We think similar laws should be enacted in the United States. In Canada the clergy (Roman Catholic) have opposed the practice of cremation, but the Legislature of Quebec has declared it legal, and a crematory has been inaugurated at Montreal. In Austria-Hungary the practice has not been legalized. In this respect Spain is more progressive, a royal decree in August, 1901, conferring legality, and basing it on hygienic grounds. In Russia, despite the opposition of Holy Synod, the government will soon decree that the custom may be optional.

RECENT SANITARY PATENTS.

701,074.—Air Cleansing and Cooling Device, Joseph McCrery, Toledo, Ohio.

700,858; 7,859.—Air Purifying and Cooling Apparatus, R. H. Thomas, Chicago, Ill.

700,916.—Filter, Charles R. Harris, Williamsport, Pa.

700,826.—Water Purifying Apparatus, James Roan, Portsmouth, Va.

701,352.—Process of Making Disinfectants, William T. Kendrick, Montgomery, Ala.

701,484.—Disinfecting Device, George N. Johnson, Desaysville, Pa.

701,373.—Water Filter, James M. McLane, Joplin, Mo.

701,883.—Car Ventilator, Peter B. Hole, McIntosh, Minn.

702,041.—Disinfecting Apparatus, West Disinfecting Co., New York.

701,827.—Sewage-Disposal Plant, United States Sanitary and Utility Sewage Disposal Co., New York.

702,466.—Filter, Valentine Oster, St. Louis, Mo.

702,581.—Ventilator, Wm. McDermott, Boston, Mass.

703,048.—Smoke Consumer, James S. Donohue, Washington, D. C.

703,149.—Smoke Consuming Attachment, William McNeill, Boston, Mass.

703,559.—Filtering Apparatus, Bernhard Müller-Rau, Frankfort-on-the-Main, Germany.

703,833.—Filtering Apparatus, David Rojat, Nimes, France.

703,745.—Garbage or Refuse Can, Elizabeth S. Seaman, New York.

703,762.—Ventilator, Fred L. Baker, Los Angeles, Cal.

703,541.—Water Purifier, Chauncey C. Clark, Philadelphia, Pa.

703,599.—Water Purifying Apparatus, C. L. Kennicott, Chicago, Ill.

704,182.—Disinfecting Apparatus, Wm. H. Francis, Philadelphia, Pa.

704,359.—Domestic Garbage Burner, Frank E. McGurrin, Salt Lake City, Utah.

204,244.—Water Purifying Apparatus, John Davis, Pittsburg, Pa.

704,920.—Water Filter, William R. Powell, Wheeling, W. Va.

705,726.—Filter Bed, James C. Wallace, Colorado City, Col.

705,696.—Water Filter, Adolph G. Noac, Cleveland, Ohio.

706,370.—Filter, Frank S. Young, Norristown, Pa.

707,333.—Filter, Churchill Hungerford, Philadelphia, Pa.

709,450.—Garbage-Treating Apparatus, Stephen E. Wilson, Frenchlanding, Mich.

709,616.—Apparatus for Treating Garbage or Similar Material, Roger Thorne, Greenwich, Conn.

709,948.—Garbage Furnace, F. W. Werner, Hempstead, N. Y.

710,350.—Ventilator, L. R. Wild, Cambridge, Mass.

710,835.—Garbage Receptacle, Henry P. Berck, Chicago, Ill.

EDITOR'S TABLE.

SANITARIAN, DECEMBER, 1902.

Embarrassment incidental to the death of the intended manager, under the new business arrangements, announced in October number, delays the completion of the organization. Meanwhile:

All Communications, business and otherwise, all exchanges and all publications for review, should be addressed to the Editor, as heretofore: Dr. A. N. Bell, 337 Clinton Street, Brooklyn, N. Y.

HEALTH OF THE ARMY.

Report of the Surgeon-General for the Fiscal Year Ending June 30, 1902.

During the year the mean strength of the army consisted of 92,491 men, of whom 81,885 were regulars and 10,606 volunteers.

The admission rate for troops serving in Porto Rico was 1,367.74 per thousand of strength, in the United States 1,550.25, in Cuba 1,557.49, and in the Pacific islands and China, 1,928.14. The death rate from all causes was 5.29 per thousand of strength in Cuba, 6.90 in the United States, 7.81 in Porto Rico, and 17.96 in the Pacific islands and China. Deaths from disease constituted only 3.21 per thousand in Cuba, 4.68 in the United States, and 12.40 in the Pacific islands and China. The mean strength of the commands were: In Porto Rico 1,153, in Cuba 5,297, in the United States 26,515, and in the Pacific islands and China 59,526.

The rates of admission to sick report for disease and injury, the rate of discharge for disability, and the mortality rate for the calendar year 1901 all agree in being considerably less than the corresponding rates of the year 1900. This shows the gradual improvement in the condition of the troops, notwithstanding the fact that many of them were subject to the exposures of the tropical service in the Division of the Philippines. That the rates continue to be higher than the average rates of the previous decade, 1890—1899, is to be expected, for during eight of those ten years the army was on home service in time of profound peace, and, owing to the great attention paid to sanitary conditions, had lower rates than at any time in its previous history. A gradual approach to the lessened rates of the decade may be seen in each of the items of the record of morbidity. Thus, the admissions to sick report in 1901 constituted 1,791.59 per thousand of the strength as compared with 2,311.81 in 1900 and with 1,502.47,

the mean annual rate of the previous ten years. The rate of discharge for disability was 19.95 in 1901 as compared with 22.60 in 1900 and with 16.69 for the decade, and the death rate from all causes was 13.94 per thousand men as compared with 22.74 and 11.91, respectively. Deaths from disease constituted 9.58 per thousand of mean strength as compared with 15.79 in 1900 and with 8.49 during the years of the decade, and deaths from injury 4.36 as compared, respectively, with 6.95 and 3.42. The report is signed by General Forwood, who retired several weeks ago. He pays a high compliment to Major Walter Reed for his discoveries as to the propagation of yellow-fever germs, saying: "In the army as a whole only 14 cases, one of which was fatal, were reported during the year. All of these occurred in Cuba prior to the precautionary measures taken in consonance with the important discovery made by Major Walter Reed, Surgeon, and his associates, concerning the propagation of the diseases by the bites of infected mosquitoes."

Of Medical Officers, the number allowed by the act approved February 2, 1901, is 321. The number in service on June 30, 1901, was 272, leaving on that date 49 vacancies to be filled. Army medical boards for the examination of candidates for appointment have continued in session during portions of the year in Washington, San Francisco, and Manila.

Of 192 candidates examined by these boards 55 were rejected as disqualified physically, 97 withdrew in the progress of the examination or were rejected on its conclusion, and 40 were approved and recommended for appointment.

The fifth and last session of the *army medical school* began November 4, 1901, and ended April 4, 1902, with a class of 23 students, all of whom were young assistant surgeons recently appointed in the Medical Corps of the Regular Army.

During the three years that have elapsed since the close of its fourth session in 1898, the operations of the school have been suspended owing to the exigencies of the service.

The act of February 2, 1901, reorganizing the army, authorized the appointment of 50 *surgeons of volunteers* with the rank of major, and 150 assistant surgeons of volunteers with the rank of captain, all for service in the Division of the Philippines. On June 30, 1901, the full complement authorized by law was in commission. During the year ended June 30, 1902, 9 majors, surgeons, were discharged from service, 1 died, and 1 was killed in action, making a loss of 11 majors, surgeons, which was repaired

by the appointment of 2 majors, surgeons, and the promotion of 9 captains, assistant surgeons. The loss among the captains, assistant surgeons, during the year consisted of 22 discharged from the service, 1 died, and 9 promoted, making a total of 32 replaced by new appointments, leaving in service June 30, 1902, the full complement of 50 majors, surgeons, and 150 captains, assistant surgeons, allowed by law.

There were in service June 30, 1901, 387 *contract surgeons.* During the year ended June 30, 1902, contracts were made with 60 physicians; 172 contracts were annulled and 2 terminated by death, leaving 273 under contract. No contracts are now being made and a gradual reduction in the number of these surgeons is being effected by natural causes.

The organization of the *Corps of Dental Surgeons* authorized by the army reorganization bill approved February 2, 1901, is still in progress. On December 31, 1901, the corps was composed of 28 appointees. Of this number, 3, employed as examining and supervision dental surgeons, constituted the board of examiners for this service. Twenty candidates had passed the examinations of the board of examiners and 5 were appointed from the army under the provisions of the act without examination by the board.

HEALTH OF THE NAVY.

Report of the Surgeon-General, Chief of the Bureau of Medicine and Surgery, for the Fiscal Year Ending June 30, 1902.

First following the summary of the Naval Hospital Fund and Estimates, for the year ending June 30, 1903, attention is urged to the almost imperative demand for an increase in the Medical Corps to correspond with the growth of the service in personnel and materiel in the past few years, thus graphically shown:

Relative increase of Medical Corps and of medical and surgical work in the Navy and Marine Corps between the years 1897 and 1901.

	Per cent.
Increase in the Medical Corps	15
Increase in actual strength of Navy and Marine Corps	70
Increase in number of admissions to sick list	75
Increase in total number of sick days	95
Increase in number of patients treated in naval hospitals	137
Increase in number of medical surveys held	174
Increase in number of persons examined for enlistment	103

From the present up to the end of 1904, 45 assistant surgeons, now at sea, will be eligible for the promotion promised them upon entering the navy. To relieve those 45 officers there will be but 10 available, and, as the corps is filled, this number cannot be augmented unless higher officers retire. In the period mentioned, only 4 retirements for age will take place, giving a possible 14 to relieve 45.

The higher grades cannot be called upon to lessen the pressure on the lower. In the next year 19 surgeons and passed assistant surgeons, now at sea, will be entitled to shore duty, having finished a period of three years on shipboard, or its equivalent on stations outside the continental limits of the United States. To relieve these there are only 11 available officers, and none of these will have had the three years' shore duty deemed necessary to regain the ground lost while out of touch with the advancement made in their profession.

It is conservatively estimated, after a careful study of the present conditions and the plans for the increase of the navy already authorized, that 150 more medical officers would be necessary to provide the service with an adequate number of medical officers to efficiently perform the duties required in the near future. In view of this fact, it is urgently recommended that Congress be asked to provide a substantial increase during the coming session, and it is suggested that legislation providing an addition to the present force of at least 75—one-half of the above number—be requested. This number should be in the lower or sea-going grades, and it is further recommended that 25 be made surgeons, making the total number 80 instead of 55 now authorized by law, and the remainder passed assistant surgeons and assistant surgeons, making a total in these grades of 160 instead of 110.

The health record of the Navy and Marine Corps for the calendar year 1901, as shown by the statistical returns, was unusually good, the ratio of admissions to the sick list per 1,000 of strength being considerably less than the average for the six preceding years.

During the year 1901, the average strength of the active list was 26,873, an increase of 3,117 over the previous year. Complete returns were received by the Medical Department from a force of 26,101.

The total number of admissions to the sick list for all causes was 20,013, the ratio per 1,000 of strength being 766.75, as compared with a ratio of 824.12 for the previous year and 807.22 for

the six preceding years. There were 17,043 admissions for disease and 2,970 for injury, giving ratios of 652.96 and 113.78 per 1,000, respectively. The corresponding ratios for the year 1900 were 688.90 and 135.22.

The daily average of patients was 887.21, and the ratio per 1,000 of strength 33.99, the corresponding data for the previous year being 799.80 and 34.80. The total number of sick days was 323,831, or 12.05 for each man in the Navy and Marine Corps and an average duration of 11.18 days' treatment for each case. During 1900 the average number of sick days was 12.28, and the average duration of treatment per case was 15.41.

The number of persons invalided from the service (including retirements of officers for disability and transfers to hospitals for the insane) was 1,003, a ratio of 37.32 per 1,000 of strength; for the year 1900 the ratio was 29.25, and the figures for the past year are considerably higher than the average for the preceding six.

One hundred and sixty-six deaths occurred during the year; the mortality per 1,000 of strength being, for disease, 4.28; for injury, 1.90; total, 6.18. During the year 1900 the death rate was abnormally high (8.88), owing to the active campaign in China, but the figures for 1901 compare favorably with the general average.

Among the causes of admission to the sick list, epidemic catarrh stands first, as in the previous year, giving a greater number of cases, 1,315, than any other disease; it appears, however, to have decreased in prevalence since 1900, when the number of admissions was 1,699. The admissions to the sick list during the past year also include 1,112 cases of malarial diseases, 778 of rheumatic affections, 717 of wounds, 695 of diarrhœal disorders, 427 of dengue, 230 of alcoholism, 183 of pneumonia, 163 of measles, 153 of mumps, 149 of dysentery, 125 of pulmonary tuberculosis, 105 of typhoid fever, 104 of organic heart disease, 95 of heat stroke, 22 of smallpox, and 3 of bubonic plague.

Dengue continues to prevail on the Asiatic Station, particularly near Cavite, where there were 268 cases; the Manila also returned a large number (75) while acting as station ship in that vicinity. Five cases of *beriberi* occurred at Cavite, the only place where the disease appears to have prevailed among our naval forces.

Of the 22 cases of smallpox returned during the year, 17 were reported from the Monterey, infection occurring while the vessel

was at Canton, China; most of the cases were mild and no deaths resulted.

Diphtheria was most prevalent aboard the Pensacola and at the Boston yard, 39 and 29 cases occurring, respectively, at those places.

There were 3 cases of *bubonic plague* at Cavite, the only occurrence of the disease during the year.

Cholera made its appearance in Manila in the latter part of March, and was reported under date of March 25. Up to April 1 there had been 9 cases in Manila, with a death rate of 75 per cent., but with the number of new cases steadily decreasing.

Manila was placed under strict quarantine, and no one was allowed to leave the city for the provinces without permission of the board of health. Vessels about to leave for other ports were required to remain in quarantine for five days before sailing.

A fatal case occurring in Cavite market, the market, shacks, and everything included therein were burned by order of the board of health. The Iris was immediately brought into requisition for distilling water for the naval station, and under an allotment of $500 from the emergency fund, Navy Department, 1902, a disinfecting house was erected. By the 15th of April the disease was reported as decreasing and under control in Manila, but spreading into the provinces, one case being discovered in Bacoor.

Leprosy in the Island of Guam.—The governor of the island has reported that several cases of leprosy have been discovered on the island, and that these cases are probably the few remaining alive of a number that escaped the sequestration in force under the Spanish government. During the interregnum between the withdrawal of the Spanish rule and the beginning of the government of the United States an opportunity was afforded for the escape of the unfortunate lepers, of which some of them took advantage. They have been kept in seclusion by the kindly though ignorant people of the island, and have escaped the observation of the authorities up to this time. The establishment of a colony for the segregation of these lepers has been effected at the west end of Tumon Bay, sufficiently distant from any village for the safety of the latter, but within practical reach of Agana, the seat of the government.

Deficiency of space and bad location of sick quarters in our vessels of war continue to be a just cause of complaint by the medical officers.—"While it is borne in mind that all other considerations must be held secondary to the fighting efficiency of the ships, the

care of the most important element of the combative body, the personnel, demands a prominent place, and in this the moral effect plays more than a secondary part to the physical. It is believed from study and comparison that much remains to be done toward effecting an improvement in ships' hospitals, and especially in their location, and that this can best be brought about by giving this bureau an opportunity to act in an advisory capacity at the time the plans of new vessels are laid down. It would seem as if those who are to use the tools would be the ones best qualified to advise in their making.

"A comparison of the hospital facilities of the Russian ship Retvizan with those of the Maine, built side by side in the shipyard of Cramp & Sons, in Philadelphia, gave a result much to the advantage of the foreigner."

The utility of the *Ambulance and Hospital Ships* Solace and Bay State is referred to as good reason why, now in time of peace, such provision should be made a standing feature, ready for instant service in time of war, and now useful for the winter manœuvres in the West Indies.

NEW YORK.—Monthly *Bulletin* of the State Department of Health sums up the record for September with 500 fewer deaths than the average of past years. The saving has been in diarrhœal and digestive diseases. Acute respiratory diseases which had an excessive mortality through the summer, have continued about ten per cent. above the normal rate for the month. Diseases of the kidney have likewise been moderately excessive. There were 417 deaths from *pneumonia,* and 385 from *Bright's disease. Acute diarrhœal diseases* have been returned under various phases and names. The nomenclature of 470 death returns have the following numerical ratio: Cholera Infantum, 227 deaths; Gastro-enteritis, 57; Enterocolitis, 43; Enteritis, 28; Ileo-colitis, 16; Colitis, 7; Dysentery, 68; Diarrhœa, 24. Of the last they were variously named infantile diarrhœa, cholera morbus, choleraic diarrhœa, summer complaint or summer diarrhœa, bowel trouble and diarrhœa. Of these, 11 occurred in infancy, 5 in middle life, and 8 past the age of sixty years. Various contributory causes of death were given. There were but 17 of the entire number in which meningitis was given, and 18 were complicated with convulsions, these sometimes being noted as the chief cause of death. Dentition, lack of proper food, mal-assimilation, milk infection, nutrition,

marasmus, stomatitis are frequently noted as attendant and contributory causes of death. Of the 227 deaths from cholera infantum, 167 occurred in the first year of life, 34 in the second year, 15 in the third year, and 2 were so-called in whom death occurred at the age of five years. Of deaths returned as from gastro-enteritis, 40 were in the first year of life, 2 in the second, 1 at 40, and 13 past sixty years, 30 of the 57 having no contributory cause given. Enterocolititis caused 30 deaths in infancy, 8 in childhood (between two and ten years of age), and 5 past sixty. Of 28 deaths from enteritis, 10 fell in the first year of life, 6 in the second, 2 in middle life, and 10 past sixty years of age. Two were defined as catarrhal enteritis and 1 as likewise cholera infantum. Ileo-colitis was given as a cause of death only in infancy and early childhood. They were all attended with meningitis, convulsions, marasmus and mal-assimilation. Six were noted as ulcerative ileocolitis, all occurring at one locality on Long Island. Colitis, sometimes noted as acute catarrhal and once as ulcerative, caused 7 deaths, 4 in infancy and 3 past sixty years of age. Dysentery was given as the cause of 68 deaths, 15 per cent. of the whole number. They were distributed in all parts of the State, and in no special locality, 4 occurring in Westchester county and 2 on Long Island. Bloody dysentery was the term applied to 2, and intestinal hemorrhage occurred in 3 others. Meningitis, convulsions, improper food and senility were given as contributory, but with 50 no comment was made. Thirteen of the deaths were in the first year of life, 9 at four, 3 at ten, 12 between thirty and fifty, and 31 were past sixty years of age. Of the entire number of 470 deaths for diarrhœal diseases occurring in all parts of the State, both rural and urban (New York City and Buffalo not being included), 352 occurred in the first year of life, 22 in the second year, 6 in youth, 20 in middle life and 70 in old age, the majority of the last being past the age of seventy years.

The percentage of deaths under five years of age in the districts into which the State is divided, severally, was, for the Maritime District, 39.1; Hudson Valley, 23.5; Adirondack and Northern, 25.4; Mohawk Valley, 21.1; Southern Tier, 25.0; East Central, 21.0; West Central, 20.3; Lake Ontario and Western, 30.0; entire State, 32.6.

The death rates, respectively, were: Maritime District, 17.2; Hudson Valley, 15.0; Adirondack and Northern, 13.0; Mohawk Valley, 14.0; Southern Tier, 12.7; East Central, 14.5; West Cen-

tral, 16.5; Lake Ontario and Western, 13.5. Total number of deaths from all causes, 9,682. Death rate, 15.8.

City of New York for September: Deaths, 5,101; percentage of deaths under 5 years of age, 40.0; death rate, 17.0. Abstract of condensed report for the quarter ending September 30:

Deaths from all causes—July, 6,487; August, 5,765; September, 5,101: 17,358.

Typhoid fever, July, 61; August, 90; September, 96: 247.

Malarial fevers, July, 15; August, 14; September, 14: 43.

Smallpox, July, 23; August, 6; September, 5: 34.

Measles, July, 40; August, 18; September, 5: 63.

Scarlet fever, July, 63; August, 32; September, 26: 121.

Whooping cough, July, 81; August, 70; September, 60: 211.

Diphtheria and croup, July, 135; August, 103; September, 109; 347.

Other epidemic diseases, July, 72; August, 59; September, 32: 163.

Tuberculosis pulmonalis, July, 632; August, 585; September, 550: 1,767.

Tubercular meningitis, July, 73; August, 83; September, 55: 210.

Other forms of tuberculosis, July, 60; August, 43; September, 50: 153.

Cancer, malignant tumors, July, 210; August, 217; September, 191: 618.

Organic heart disease, July, 328; August, 309; September, 305: 942.

Diarrhœas (under 2 years), July, 1,478; August, 1,088; September, 715: 3,281.

Under 1 year, July, 2,215; August, 1,903; September, 1,423: 5,541.

One year, under 2 years, July, 522; August, 429; September, 369: 1,320.

Total under 5 years, July, 3,109; August, 2,608; September, 2,003: 7,720.

Sixty-five years and over, July, 663; August, 615; September, 604: 1,882.

There were 2,280 less deaths recorded and a lowered death rate of over three points was noted in the third quarter of the year 1902, as compared with the corresponding quarter of the year

1901; the greatest decrease, 1,176, occurred among the deaths reported from sunstroke, the year of 1902 was welcomely cool as compared with that of the previous year, which was one of the hottest and most deadly recorded in the history of the department; the next greatest decrease was among the diarrhœal diseases, 947 fewer deaths were reported in deaths from diarrhœal diseases under two years of age; substantial decreases were also shown in smallpox, measles, scarlet fever and pulmonary tuberculosis, there having been reported 122 less deaths from the last-mentioned disease; during the three quarters of 1902 there were 514 less deaths reported from pulmonary tuberculosis than in the corresponding period of previous year—truly, a gratifying result.

Pneumonia, broncho-pneumonia and acute bronchitis showed a total increase of 219 deaths, due to atmospheric conditions; diphtheria and croup showed an increase of 52 deaths, and whooping cough an increase of 122 deaths.

Deaths during the four weeks ending November 8, 4,304; death rate, 15.67.

Cases of and deaths from infectious and contagious diseases reported for the same period: Tuberculosis pulmonalis, 883 cases, 562 deaths; diphtheria and croup, 1,210 cases, 135 deaths; measles, 207 cases, 7 deaths; scarlet fever, 433 cases, 32 deaths; smallpox, 12 cases, 2 deaths; varicella, 122 cases; typhoid fever, 555 cases, 10 deaths.

CALIFORNIA.—San Francisco, 360,000. The *plague* record for October ("Occidental Medical Times"), eight cases, all fatal, and all but one were Chinese. The exception case, so far as learned, had no communication with the Chinese quarter. The man worked in a part of the city several blocks from the infected district. Total number of cases to October 28, 89.

Los Angeles, 120,000. Report for October: Deaths, 179; 21 under five years; annual death rate, 14.91. Deaths from tuberculosis, 38; 13 had lived here less than three months, 2 between three and six months, 2 between six and twelve months, 6 between one and five years, 4 between five and ten years, 8 over ten years, unknown, 3.

COLORADO.—Denver, 150,000. Bureau of Health report for September: Total number of deaths, 201; 46 under 5 years; deaths from phthisis, 46; diphtheria, 2; scarlet fever, 2; typhoid fever, 13; erysipelas, 2; cancer, 10; death rate per 1,000 per annum,

16.08. Infectious diseases reported: diphtheria, 24; scarlet fever, 17; typhoid fever, 70; measles, 3; smallpox, 4; erysipelas, 2.

CONNECTICUT.—Mortality reports for October 1, 133; 33 less than in September, and 71 more than in October of last year, and 31 more than the average number of deaths in October for the five years preceding.

The death rate was 15.9 for the large towns, for the small towns 12.2, and for the whole State 14.9.

The deaths reported from infectious diseases, including diarrhœal, were 283, being 25.0 per cent. of the total mortality.

DELAWARE.—Bulletin of the Pathological and Bacteriological Laboratory of the State Board of Health for October, reports local epidemics of typhoid fever have recently occurred in Newark, near the P., W. & B. Station, and in Georgetown. The laboratory proved of great aid to the physicians in charge by establishing the correct diagnosis in obscure cases and confirming the diagnosis in suspected cases. As is generally the case, the epidemics originated from polluted surface water which gained access to the shallow wells.

Shallow surface wells are extensively used in this State as sources of water supply. Occasionally outbreaks of typhoid fever have occurred in sections where surface wells have suffered contamination, while in a few localities where the wells are unusually shallow and poorly constructed typhoid or pseudo-typhoid conditions are endemic.

DISTRICT OF COLUMBIA, 292,367—89,632 colored. Weekly report, November 29, 903. The decline of 20 per cent. in the number of deaths in this district, as indicated by the report for week before last, was followed by a further decline of 14 per cent. during the week ended on 22d inst. There were 78 deaths, the death rate being 16.2, and 106 in the corresponding period of last year, the death rate being 19.8. In the past week 48 of the deaths were of white persons, representing a death rate of 12.3, and 30 colored, death rate, 17.4. There was a decrease from 9 to 5 deaths from kidney diseases, and from 7 to 6 from consumption. From typhoid fever 3 deaths. Of this disease there were 299 cases from the previous week. New cases to the number of 43 occurred and 53 were discharged, leaving 289 under treatment at the close of the week. By the last report there were 31 cases of scarlet fever

in quarantine. During the current week 1 new case was reported and 7 were discharged, leaving 25 cases with warning cards in 19 premises. Of diphtheria there were 14 cases in quarantine. There occurred 13 new cases and 6 being discharged, left 21 cases in 9 premises at the close of this report.

ILLINOIS.—Chicago. Bulletin for week ended November 22, 1902. Notwithstanding the threatening indications of a high death rate during the early part of the month, November bids fair to maintain its position of lowest monthly death rate of the year. The 1,437 deaths reported during the first twenty-two days represent an annual rate of 13.09 per 1,000 of population. This is nearly 20 (19.3) per cent. less than the average November rate during the decade 1881-1890, and 9.1 per cent. less than the average November rate during the decade 1891-1900. It is not, however, so low as the rate for the corresponding period of last November, when it was only 11.83 per 1,000. Last year, it will be remembered, was that of lowest death rates all over the world.

Statement of mortality for the week ended November 22, 1902, compared with the preceding week, and with the corresponding week of 1901—death rates computed on estimated populations of 1,820,000 for 1902, of 1,758,000 for 1901:

Total deaths, all causes, November 22, 1902, 460; November 15, 1902, 486; November 23, 1901, 438. Death rates per annum, per 1,000, 13.17; 13.91; 12.97. Deaths for the same weeks: of infants under 1 year, 91, 73, 63; 1 to 5: 56, 59, 36. Deaths from bronchitis, 21, 19, 9; cancer, 37, 45, 62; consumption, 37, 45, 62; diphtheria, 23, 19, 12; typhoid fever, 9, 21, 6.

Chicago's wonderful smallpox record still continues. With the disease surrounding the city in close proximity, from Evanston on the north to Hammond on the southeast, and with repeated imported cases, there is no spread among our well-vaccinated population. There were six cases admitted to the isolation hospital during the week—two from Evanston direct, three children attending a parochial school in Evanston but living near the northern city limits, and a traveling man who contracted the disease probably in Milwaukee. None of these had ever been vaccinated. At the close of the week there were eleven cases remaining in the isolation hospital, seven having been discharged recovered, and no deaths.

IOWA.—State Board of Health Bulletin for November reports outbreaks of infectious diseases during the preceding quarter:

Diphtheria in 25 localities; *measles* in 2; *scarlet fever* in 28; *smallpox* in 40; *typhoid fever* in 10.

LOUISIANA.—New Orleans, 305,000—81,500 colored. Report for October: Total deaths, 460—173 colored; 86 under 5 years —29 colored. Annual death rate, white, 15.21; colored, 25.47: 18.17. Deaths from typhoid fever, 6 white, 2 colored; malarial cachexia, 2 white, 3 colored; tuberculosis of the lungs, white, 48; colored, 32; cancer, 19—9 colored.

MASSACHUSETTS.—Boston, 588,741. The report for September: Deaths, 868—332 under 5 years. Death rate, 17.69. Deaths from typhoid fever, 22; smallpox, 9; scarlatina, 4; whooping cough, 16; croup and diphtheria, 10; cerebrospinal meningitis, 4; diarrhœa and enteritis, under two years, 4; tubercle of the lungs, 73; other tubercular diseases, 10; heart disease, 55; acute nephritis, 20; Bright's disease, 13; cancer, 36. Contagious and infectious diseases reported: Cerebrospinal meningitis, 4; diphtheria and croup, 142; pulmonary and laryngeal tuberculosis, 71; measles, 17; scarlatina, 65; smallpox, 54; typhoid fever, 197; chickenpox, 11.

MICHIGAN.—The Secretary of the State Board of Health reports for October, 1902, compared with the preceding month, scarlet fever and diphtheria were more prevalent; and diarrhœa, cholera morbus, inflammation of bowels, dysentery, remittent fever, cholera infantum, measles and smallpox were less prevalent. Compared with the average for October in the ten years, 1892-1901, diphtheria, scarlet fever, whooping cough, measles and smallpox were more than usually prevalent; and diarrhœa, typhoid fever, consumption, intermittent fever, cholera morbus, inflammation of bowels, dysentery, erysipelas, remittent fever, and cholera infantum were less than usually prevalent. Diarrhœa fell from second place in the order of diseases which caused most sickness in September, to fifth place in October, and was 23 per cent. less prevalent than in the average October. The decreased prevalence, in October, of diarrhœa, and of the other diseases which prevail during the summer and fall months, may have been due to the unusually cold and wet weather of the preceding month. Of the most dangerous communicable diseases, including reports by regular observers and others, *meningitis* was reported present in Michigan during the month at 6 places; *smallpox* at 34 places;

whooping cough at 35 places; *measles* at 42 places; *diphtheria* at 71 places; *scarlet fever* at 148 places; *typhoid fever* at 4 places more, and *consumption* at 10 places more, in the month of October, 1902, than in the preceding month. The number of deaths reported to the Department of State for the month of October was 2,360, a decrease of 188 deaths from the preceding month. The death rate was 11.4 per 1,000 population, as compared with 12.6 for September. There were 470 deaths of infants under 1 year; 181 deaths of children aged 1 to 4 years, inclusive, and 607 deaths of persons over 65 years of age. Important causes of death were as follows: Pulmonary tuberculosis, 143; other forms of tuberculosis, 19; typhoid fever, 84; diphtheria and croup, 73; scarlet fever, 19; measles, 2; whooping cough, 13; smallpox, 2; hydrophobia, 1; pneumonia, 149; diarrhœa and enteritis, under two years, 130; cancer, 104; accidents and violence, 188. A decrease was shown in mortality from tuberculosis, whooping cough and diarrhœal diseases from the preceding month, and an increase in deaths from diphtheria and pneumonia.

MINNESOTA.—Minneapolis, 240,000. Registry of deaths for October, 1902: Deaths, 172—33 under five years; death rate, 19.0. Deaths from typhoid fever, 4; tubercle of the lungs, 22; other forms of tuberculosis, 2; diphtheria and croup, 7; diarrhœa under 2 years, 5; cancer, 7.

St. Paul, 170,000. Report for October, 1902: Deaths, 120—40 under five years; death rate, 8.46; deaths from typhoid fever, 4; "tuberculosis of the lungs, 7"; "tuberculosis, 3"; cancer, 6.

MISSOURI.—St. Louis, 621,000—39,000 colored. Report for October, 1902: Deaths, 765—179 under five years. The annual death rate per 1,000 during the month was, white, 13.95; colored, 27.07: 15.16. Deaths from scarlet fever, 11; diphtheria and croup, 24; whooping cough, 3; typhoid fever, 32; cerebrospinal fever, 2; diarrhœal diseases under 5 years, 25; pulmonary tuberculosis, 86; cancer, 39.

NEW JERSEY.—Hudson County (Jersey City and environs), 409,810. Report for September, 1902: Deaths, 509—200 under five years; death rate, 14.9; deaths from diphtheria and croup, 29; typhoid fever, 12; diarrhœal diseases, 17; all zymotic diseases, 71; consumption, 45; bronchitis, 5; pneumonia, 32.

Newark, 255,000. Report for the week ending November 22,

1902: Contagious and infectious diseases reported, 45, being a decrease from the preceding week of 9; deaths from contagious and infectious diseases, 22; typhoid fever, 1; whooping cough, 1; consumption, 9; cancer, 5. Total number of deaths reported, 110; death rate, 22.43.

Twenty-fifth Annual Report of the State Board of Health, and the Report of the Bureau of Vital Statistics for the statistical year ending June 30, 1901.—Population of New Jersey by U. S. census, 1900, was 1,183,669, and the estimated population for 1901, 1,925,781. Births recorded during the year ending June 30, 1901, 33,804—17.55 per 1,000. Marriages, 15,857. Deaths, 31,048—16.12 per 1,000. Tabulated statistics of deaths with classification of causes for twenty-three years show an encouraging ratio and decrease per 10,000 deaths from all causes of some of the most pronounced diseases amenable to sanitation. *E. G.*: Remittent fever, 1879-1889, 2.62—1.44; 1890-1901, 1.35—.46. Typhoid fever, 1879-1890, 3.17—5.42; 1891-1901, 4.69—1.95. Diphtheria and croup, 1879-1892, 10.86—11.74; 1893-1891, 10.89—4.33. Consumption, 1879-1889, 27.31—24.50; 1888-1901, 24.46—18.76.

Cancer caused 1,001 deaths during the year—80 more than during the previous year and 349 more than the average for the twenty-three years.

Summary of the local boards of health, with formula for details, show thoroughly organized service throughout the State well calculated to elicit exact information.

North Carolina.—Bulletin of State Board reports for September, 1902: Twenty-six towns with an aggregate population of white, 83,300; colored, 58,850: 142,150. Aggregate deaths, 265—157 colored; 82 under five years of age; still born, 12. Death rates, white, 15.6; colored, 32.0: 22.3.

Deaths from typhoid fever, 18; malarial fever, 24; consumption, 31; diarrhœal diseases, 38; smallpox reported in seventeen counties, an aggregate of 68 cases, no deaths.

Ohio.—Sanitary Bulletin, November-December: Cases of infectious diseases reported to the State Board of Health during four weeks ending November 8, 1902, localities with an aggregate population of 1,307,616: membranous croup and diphtheria, 359 cases, 84 deaths; scarlet fever, 215 cases, 3 deaths; typhoid fever, 213 cases, 46 deaths; whooping cough, 42 cases, 12 deaths; measles, 16 cases, 1 death.

Smallpox in Ohio, June 1-November 8, 2,609 cases, 248 deaths; October 11-November 8, 319 cases, 34 deaths.

Cleveland, 400,000. Reports for October, 1902: Total deaths, 509—176 under five years of age. Annual death rate, 15.27. Deaths from consumption, 41; typhoid fever, 8; smallpox, 47—a decrease of 3 from September; diphtheria and croup, 31; whooping cough, 3; diarrhœa under two years, 12; cancer, 13.

PENNSYLVANIA.—Philadelphia, 1,349,712. Report for week ended November 22, 1902: Deaths, 448—117 under five years. Deaths from consumption, 52; typhoid fever, 14; diphtheria and croup, 11; cancer, 20.

Pittsburg, 346,000. Report of the Bureau of Health for week ended November 22, 1902: Deaths, 140—88 under five years; annual death rate, 21.04. Deaths from diphtheria and croup, 6; typhoid fever, 5; smallpox, 7; whooping cough, 3; consumption, 9; cancer, 4.

Cases of infectious diseases reported: Smallpox, 44; diphtheria and croup, 29; scarlet fever, 9; typhoid fever, 47.

WASHINGTON.—Seattle, 115,000. Report of the Department of Health for October, 1902: Total number of deaths, 70—11 under five years. Death rate, 7.20. Deaths from pulmonary tuberculosis, 8; from other diseases, 1 to 3. Infectious diseases reported during the month: Scarlet fever, 26; diphtheria, 2; measles, 5; smallpox, 6; tuberculosis, 9; typhoid fever, 18; varicella, 4.

WISCONSIN.—Milwaukee, 300,000. Report for October: Deaths, 267—76 under five years. Annual death rate, 10.50. Deaths from typhoid fever, 8; whooping cough, 2; diphtheria and croup, 6; other infectious diseases, 3; pulmonary tuberculosis, 22; other tubercular diseases, 3; cancer, 13. Cases of infectious diseases reported: Smallpox, 72; tuberculosis, 10; diphtheria, 52; scarlet fever, 11; typhoid fever, 26; measles, 12.

Annual report for the year ending April 15: Total number of births reported for the year 1901 was 7,415 as against 7,492 for 1900; of this number 3,749 were males and 3,666 females; 7,406 white and 9 colored; 2,593 were reported by physicians and 4,822 by midwives.

The total number of deaths reported for 1901 was 3,833, 2,083 males and 1,750 females, representing an annual death rate on an estimated population of 295,000 of 12.99 per thousand. The

death rate for the year was, with one exception (1898), the lowest in the history of Milwaukee, and this city again upholds its reputation for healthfulness. An annual mortality rate of 12.99 is a record unequalled by any other city of its size.

During the year 1901, 1,330 deaths occurred among children under five years of age, as against 1,731 for 1900, giving an infant mortality of 34.69. The records of the department show this to be the lowest percentage of deaths occurring among children under five years of age in its history.

During the year 483 cases of diphtheria were reported, with 100 deaths. Tabulated statistics of this disease for twelve years, 1890-1891, sum up 8,833 cases, with 2,444 deaths. A glance at the figures shows an almost uniform decrease of mortality since the use of antitoxin in the treatment of the disease. In 1890, there were 827 cases, with 241 deaths; in 1896, 919 cases, with 254 deaths; in 1900, 716 cases, with 124 deaths; 1901, 483 cases, with 100 deaths.

Of other infectious diseases for the year: Measles, 156 cases, with 17 deaths; scarlet fever, 372 cases, 16 deaths; smallpox, 28 cases—"in nearly every instance brought into the city by parties who contracted the disease elsewhere," but its spread was prevented by drastic measures and vaccination.

Of typhoid fever there were 205 cases reported, with 63 deaths. "Were this a correct statement of the number of cases of typhoid that occurred the mortality would be over 30 per cent. As pointed out in a previous report, such a statistical record is of relatively little value, for it merely proves that many more cases of typhoid raged in the city, and that either the cases were not properly reported, or that they had no medical treatment, or were unrecognized by the attendants. Taking 10 per cent. as a maximum mortality, there must have existed over 600 cases during the year. This is probably a more nearly correct estimate than that given in the official records. No epidemic of any severity occurred at any time during the year, and a considerable reduction over last year's reported cases (340) is noted."

PORTO RICO, 953,947.—Superior Board of Health Consolidated Report for October, 1902: Living births, legitimate, 859, illegitimate, 670; still births, 152. Deaths, 2,351—757 under five years. Annual death rate, 29.6. Deaths from cerebrospinal fever, 22; diphtheria, 3; typhoid fever, 7; pneumonia, 39; puerperal fever, 25; diarrhœa, 9; dysentery, 28; anemia, 760; bronchitis, 83; tu-

berculosis, 113; heart disease, 25; diseases of the nervous system, 29; accidents and violence, 15.

CUBA.—Havana, 275,000—73,000 colored. Chief Sanitary Officer's report for September, 1902: Total mortality, 404; death rate, 17.86. This is the lowest death rate recorded for the district of Havana since the incorporation of Regla, with its 11,363 inhabitants, in November of last year, and even since the previous month of October. As compared with the preceding thirty days of August the present report shows a diminution of 103 deaths. Among particular diseases, the decrease of typhoid has continued at a rapid rate, only six deaths having been recorded this month against 13 in the preceding thirty days. The deaths from tuberculosis have diminished by 29 per cent.

The mortality of children under five years of age has also been reduced by 24 per cent. In the deaths from infantile meningitis alone it has fallen from 45 to 27.

Two cases of yellow fever were imported in the month of September. One from Veracruz on the S. S. Monterey, having been attacked on board on the 4th of the month, the day of departure, and conveyed to Las Animas Hospital on the 8th; the other case came from Merida and Progreso on the S. S. Havana, he was taken ill on the day of arrival, and removed to Las Animas the same day. The former was quite a severe case, but both recovered. A case of smallpox was also imported on S. S. Oton, from Antwerp and Bilbao. The patient had been attacked on the 18th of September, disinfection of his effects and vaccination or revaccination of all the non-immunes at the hospital being duly attended to.

The reports from other parts of the island show that the exemption from yellow fever, smallpox, and other quarantinable diseases continues and that the general health is satisfactory.

BOOK REVIEWS.

THE SMITHSONIAN INSTITUTION, Washington: Annual Report for 1901, 8vo, pages 849, is before us. It contains fifty articles, many of them illustrated, nearly all prepared by masters of the respective subjects, telling in clear and interesting language of the latest progress in all the principal branches of knowledge, thus fulfilling in an eminent degree one of its most important functions,

the diffusion of knowledge in language "understanded of the people," so that, while most of its works are intended primarily for the specialist, there is an exception made by the secretary in publishing an Appendix to the Report of the Board of Regents, which is in fact an annual summary of the most interesting events of the scientific year, prepared for that large body of the public which does not care for professional memoirs, but has a general interest in such matters.

A short sketch of the history and the work of the Smithsonian Institution begins with a paragraph from President Roosevelt's first message to Congress, in which he calls attention to the Institution's functions and its present needs. The paper further states that the Smithsonian Institution, which is composed of the President and his Cabinet, and the Vice-President and Chief Justice of the United States, has a remarkable organization for the administration of funds for the promotion of science. Its activities could be still further increased if it had greater means at its absolute disposal; while those who are thinking of giving for some special scientific object may yet find the Regents, on account of the peculiarly disinterested position they hold, the best counsellors in suggesting the channel into which gifts for public purposes might be directed, even should they not see their way clear to accepting such donations for the Institution itself.

"Bodies Smaller than Atoms" is the title of an interesting paper, and as we read "The Laws of Nature," "The Greatest Flying Creature," and "The Fire Walk Ceremony at Tahiti," we are reminded of the wide range of subjects included in the report. Wireless telegraphy, transatlantic telephoning, and the telephonograph are discussed by experts in electrical progress. Attention ought also to be called to papers on utilization of the sun's energy, the Bogosloff volcanoes of Alaska, forest destruction, irrigation, the Children's Room at the Smithsonian, the submarine boat, a new African animal, pictures by prehistoric cave-dwellers in France, automobile races, the terrible lizards that once lived in America, and Mr. Thompson Seton's paper on the National Zoölogical Park at Washington.

The whole volume has been called "the best popular scientific annual published in the world," which the volume before us exemplifies.

THE TREATMENT OF TABETIC ATAXIA BY MEANS OF SYSTEMATIC EXERCISE.—An Exposition of the Principles and Practice of Compensatory Movement Treatment. By DR. H. S. FRENKEL.

Medical Superintendent of the Sanatorium "Freihof" in Heiden, Switzerland.—Translated and Edited by L. FREYBERGER, M. D. (Vienna), M. R. C. P. Lond., etc. 8vo. 198 pages. With 132 Illustrations. Price, $3.00, net. Philadelphia: P. Blakiston's Son & Co.

The author of this book read a notable paper on the treatment of locomotor ataxia before the neurological section of the Congress of Scientists and Neurologists at Bremen in 1889. He has continued to devote himself to the subject and the book before us purports to be an elaboration of and improvement upon the method he, at that time, advocated, together with a comprehensive review of the nature of the disease and methods of treatment by others, insomuch that "many, if not most of the exercises of Frenkel's method are so simple and need so few mechanical appliances, that every practitioner will be enabled to treat slight and moderately severe cases of tabes at his or the patient's house."

THE YEARBOOK OF THE UNITED STATES DEPARTMENT OF AGRICULTURE, 1891, Washington, a volume of 846 pages, is replete with information of practical importance to agriculturists not only, but to all "who would keep abreast with the progress of knowledge on dietary studies, dairy products, the relation of animan diseases to mankind and the importance of vegetable life, nutrition and forest growth. It opens with the Annual Report of the Secretary, with a general review of the operations of the Department for the year. Contains twenty-three articles, several of them elaborately illustrated, eighteen of them colored, showing the detail of original work. The particularly notable contributions of interest to sanitarians are: Dietaries in Public Institutions, by Prof. W. O. Atwater; Insects as Carriers and Spreaders of Disease, by L. O. Howard; and Tuberculin Test for Tuberculosis, by D. E. Salmon, Chief of the Bureau of Animal Industry.

QUIZ-COMPEND OF PHYSIOLOGY, by ALBERT P. BRUBAKER, A.M., M.D. Eleventh Edition, Revised and Enlarged. 12mo. 280 pages. $0.80, net. Philadelphia: P. Blakiston's Son & Co.

An excellent book of its kind as a pocket remembrancer for students preparing for the "green room."

THE PUBLIC AND THE DOCTOR, by B. E. HADRA, M. D., Dallas, Texas. Price, 50 cents. An interesting little book, calculated to offset the wiles and dangers of quacks and quackery. We commend it as an excellent family remedy against the taint of quackery.

CONTEMPORARY LITERATURE.

THE CENTURY for November marks its new year and volume by the introduction of a new type and a lighter looking page. It has a cover in colors by Adamson and adds to the range and interest of its experiments in color printing seven pictures by Maxfield Parrish originally made in color for the series on "The Great Southwest," and which have already appeared in black and white. Apart from Mr. Parrish's artistic work, these pictures challenge attention as examples of what can be done with modern methods of color printing. They appear as frontispieces.

The article of greatest current interest is probably the first of the "Century's" articles on the trusts, "The So-Called Beef Trust," being treated by George Buchanan Fife. The aim of this series is neither to attack nor to defend the trusts, but to make accurate reports of the workings of "The Great Business Combinations of To-day."

"The Prologue of the American Revolution" is the title given to a group of papers by Professor Justin H. Smith, of Dartmouth, dealing freshly with an unhackneyed and heroic theme—the Canadian campaigns of Montgomery and Benedict Arnold. The first paper describes Montgomery's expedition and is fully illustrated. —Editorially:

"DEMOCRACY AND MANNERS."

"It can hardly be denied that there is a spirit in some parts of our population that mistakes democracy for bad manners, and that, after selecting certain persons for superior functions, illogically, enviously, ignorantly, and boorishly would deny the superiority which they themselves have helped to create and which is necessary in every well-ordered government. In a sense, a free-born American has a right to feel that no one is his superior. He has equal rights with all, and he is eligible, himself, to the most exalted office. But he must have a poor opinion of the dignity of his own government if he fails in due and natural respect for the individuals set apart by the people themselves for the highest administrative offices in the State and the nation. It is to the credit of the American people that the sentiment of respect for those in authority is general, and that this respect follows into retirement those who have served the people honestly in positions of respon-

sibility and power. When another spirit is shown, it is exceptional. The incident at Pittsfield, with its accompaniments, shows that the slightest deviation from this respect shocks the wholesome sentiment of the country, and that rightly, for it is clearly seen that such deviation may have consequences to the nation terrible to contemplate."

"MANKIND IN THE MAKING."

The thought that we are the actual creators of the world's future is one that must load us with a sense of responsibility that will be intolerable or inspiring according to our disposition. Yet, when we speculate about the condition of the world in the coming century we do not realize that things in that age will be what we make them. In the third instalment of "Mankind in the Making," which is probably Mr. H. G. Wells's most important work, the author considers "Certain Wholesale Aspects of Man-making." No problems in the world are more universally important than those which concern themselves with the birth of the generations which are to succeed us, and a paper such as that included in the November "Cosmopolitan"—free from technical phrases, and interesting in every paragraph, will be read by a wide class of readers.

THE REVIEW OF REVIEWS for November presents seven pages of "Cartoon Comments on the Coal Strike and Its Settlement"—an aftermath of the great labor conflict that is not without its instructive features. These cartoons, reproduced in these pages, represent every phase of public opinion as expressed in all parts of the land.

"THE NATURE MOVEMENT" IN LITERATURE AND IN LIFE.

Were we to seek for the causes of this change in taste among readers we should find the most potent one to be the strong tide of population that has turned toward cities. We have before us a condition that is little more than a reaction or a return to a first love. This reading of Nature-books is part of the consequences of the impulse which each year drives more and more city people to spend longer seasons in the country. With the delights of this migration from brick walls to velvet lawns and shaded woods has come this interest in the flowers, shrubs, and trees of the forest; in wild game that live there; in the fish of streams; and in the

birds of the air. We have, therefore, in literature only a part of the consequence of that potent influence which made the bicycle so recently popular, and which now has made myriads of devotees of golf.

An interesting outcome of this whole subject has just appeared in England. Nature study has become in that country a popular educational fad, and the recent "Nature Study Exhibition," held in the Royal Botanical Gardens in London, has awakened so much interest from its novelty and its suggestiveness, that there are enthusiasts who predict that it will lead to an entirely new educational movement. It is even predicted that text-books, as a main means to an education, are doomed, the open book of Nature being the volume which in the future will be most industriously and profitably thumbed.—From "The Rise of the Nature Writers," by Francis W. Halsey, in the "American Monthly Review of Reviews" for November.

THE NEW AMERICAN NAVY.

"Spain suffered crushing defeat in 1898," says Ex-Secretary John D. Long in the "Outlook," in the first of a series of articles bearing the above title, "because she was not ready and because the United States—comparatively only—was ready for the combat. Before the shock of conflict, the former's fleets appeared formidable in comparison with our own. The battles of Manila and Santiago, and the futile efforts of Spain to form a squadron strong enough to effect the relief of her ultramarine dependencies, showed that her sea force was practically in a state of weakness and inefficiency. Fortunately for us, the pitiable decrepitude of the naval arm of our government sixteen years before the struggle had aroused the country and regeneration had followed the awakening. Victory over the foe of 1898 must be attributed, therefore, in some measure to the patriots who foresaw their country's need and with characteristic energy and push took measures which enabled her to meet it. The lesson of the need of preparedness is taught by our whole naval history. No war has found the American navy fully prepared to undergo its test; but that with Spain clearly demonstrated that never before in our history was the service on the whole in as efficient a condition."

THE DELINEATOR, Christmas number and the *thirtieth* anniversary number, for beauty and repleteness of utility is incompar-

able. The best modern writers and artists are generously represented. Over 230 pages, thirty-four full-page illustrations, of which twenty are in two or more colors. The magnitude of this December number, "for which 728 tons of paper and six tons of ink have been used, may be understood from the fact that 91 presses running fourteen hours a day, have been required to print it; the binding alone of the edition of 915,000 copies representing over 20,000,000 sections which had to be gathered individually by human hands."

A SHELF FOR THE ELECT.

If you have already grouped your books according to your liking for them, it will be found pleasant to set apart a special shelf or a chosen part of your bookcase for your intimate book-friends —the ones that you most respect, enjoy, and are truly fond of. Then, when in the mood for converse with a favorite author, you can turn to this special group, sure of finding what you want. Or, if you do not care to open the volumes, you can "read them by the backs"—a phrase already explained in this department. That is to say, you can by a mere glance at the books themselves conjure up as if by a magic charm the scenes, personages, and often the very words that lie within.—From "Books and Reading," in the November "St. Nicholas."

NEWS FROM PROCTOR'S.

That "nothing succeeds like success" is shown every week in the prosperity of the seven beautiful Proctor theatres in New York, Newark, Albany and Montreal. Great throngs are attracted by the splendid and diversified programmes presented at these model playhouses, and as a pleased patron is a prolific advertisement the vogue of the Proctor plan is daily on the increase.

Continuous vaudeville of the best class holds attention at the Twenty-third Street and at Proctor's, Newark; the Albany and Montreal theatres, on the Proctor circuit, giving alternate programmes of vaudeville and drama. At the theatres where the Proctor Stock Co. has possession, vaudeville specialties are introduced between the acts of the plays.

Sunday concerts at all of Proctor's New York theatres introduce the best acts in vaudeville, and the entertainments are the best in the Greater City. They are conducted on the continuous plan, opening every Sunday afternoon at 2 o'clock.

TWENTIETH CENTURY WORLD-WIDE TEMPERANCE CRUSADE.

Special Committees.

THE UNITED STATES.

Hon. Henry B. Metcalf, Chairman.
James B. Dunn, D. D., Secretary.
Thos. L. Poulson, D. D.
Wm. T. Wardwell.
Theophilus A. Brouwer.
Joshua L. Barton, M. D.
D. L. Mann, M. D.

GREAT BRITAIN AND CANADA.

His Grace Archbishop of Canterbury.
Bishop Bardsley Carlisle.
Canon Farrar, D. D., F. R. S.
Sir Wilfrid Lawson, Brayton Hall.
W. S. Caine, M. P., London.
F. S. Spence, Canada.
And the Officers of the various Temperance Societies.

J. L. Baily, Pres. N. T. S. Rev. Hervey Wood, Field Sec.

Treasurer of the Twentieth Century Fund,
WALTER B. HORN, Esq., 3 West 18th Street.

Affiliated Organizations.

RELIGIOUS.

Geo. C. Lorimer, D. D., Baptist.
Rev. W. C. Lilley, Presbyterian.
Bishop J. N. Fitzgerald, M. E. Church.
Bishop F. D. Huntington, P. E. Church.
Addison P. Foster, D. D., Congregational.
David J. Burrell, D. D., Ref. Church.
Rev. A. P. Doyle, Roman Catholic.
S. E. Sweetzer, D. D., Universalist.
F. H. Foster, D. D., Ref. Presbyterian.
Hon. John D. Long, Unitarian.

TEMPERANCE.

A. G. Lawson, D. D., S. of T.
J. N. Cummings, I. O. G. T.
Oliver W. Stewart, Prohibitionist.
Mrs. L. M. N. Stevens, W. C. T. U.
Robert Graham, Church Temp. Society.
Rev. A. P. Doyle, Roman Catholic T. A. S.
Henry Coleman, D. D., A. S. L.
J. B. Lewis, Esq., America's representative in Europe for 20th Century Crusade.

PRESS COMMITTEE.—William Randolph Hearst, Chairman; James B. Dunn, D. D., Secretary.

CIRCULAR LETTER TO MINISTERS AND CHURCHES.

NEW YORK, October 25th, 1902.

The Temperance Reform had a Christian birth. Its nursing fathers and mothers were Godly men and women, eminent in the Christian Church of that day.

Its first great standard bearers were ministers, and for many years the work was carried forward vigorously and successfully chiefly through the instrumentality of the churches as led by their ministers, and so, if the drink evil is to be removed, there must be a revival of the spirit of the olden times, and its methods, so far as they are to-day available.

The Board of Managers of the National Temperance Society, convinced—after conference with leading friends of the reform in Great Britain, the United States and Canada—that the time has come for a new campaign or World's Crusade in behalf of individual pledge signing and consecration, have appointed a special committee primarily to seek immediate co-operation of the ministers and churches of all religious bodies and of all temperance organizations in carrying on this new temperance crusade under any special form of organizations that may prove to be needed.

The committee call for a simultaneous revival in all the churches of the English-speaking world on Sunday, November 23, 1902 (Temperance Sunday), in inaugurating a crusade against the use of intoxicating drinks, through the instrumentality of pledge signing, by the old and young, by the weak because they need protection, and by the strong who in gratitude for their strength are willing to be helpful to their weaker brethren.

Upon request, the committee will send special information and blanks for pledge signing, with instructions and as many pledges as may be desired, free. Ministers planning to preach on the subject will be furnished with valuable and interesting temperance literature and some up-to-date official statistics, if they will send name and address to World's Temperance Crusade, No. 3 West 18th Street, New York.

SANITARY SCIENCE.

A SYNOPSIS OF SANITARY SCIENCE AS REPRESENTED IN THE SANITARIAN, ALPHABETICALLY.*

By the Editor.

Longevity, Sheppard Homans. . . . "How are we to account for the ages recorded in Genesis of Adam, his sons, and Methuselah? We cannot disregard the teachings of science, nor need we doubt the statement in Holy Writ. Each has Divine authority. By what theory can we reconcile the two? Simply that the year, or unit of time, among the early patriarchs differed from that adopted since the Deluge, which has been twelve calendar months. Hensler, a high authority, shows the strong probability that the year, till the time of Abraham, consisted of three months only, and that not until the time of Joseph was it extended to twelve months. 'This assertion,' says Hufeland, a still higher authority, 'is to a certain degree confirmed by some of the Eastern nations who still reckon only three months to the year,' and besides it would be altogether inexplicable why the life of man should have been shortened three-fourths immediately after the flood. Moreover, the recorded ages when the early patriarchs married was about four times the usual age. Again, with the period of Abraham, we find mention of a duration of life which can still be attained, and which no longer appears extraordinary, especially when we consider the temperate manner in which the patriarchs lived. We think, therefore, that Hufeland has arrived at a correct conclusion when he says that 'man can still attain to the same age as ever.'" . . . "I select the following from a list containing the names of 208 persons who died at or above the age of 120 years: Thomas Carn, Shoreritch, England, at the age of 207, in 1588. This case is said to be confirmed by the parish registers; Louisa Truxo, a negress, 175 years, Brazil, in 1780; Thomas Parr, Shropshire, England, 152 years, in 1635. In the 'St. Petersburg Gazette,' a Russian paper published in 1812, the case is recorded of a man who died in the diocese of

*Continued from previous number.

Elasticus who attained an age between 200 and 205 years at death. Scientific research has demonstrated some remarkable physiological facts which bear upon the duration of human life. It is demonstrated that species never change. Their physiological characteristics are fixed and unalterable. Man at the present day has precisely the same formation, the same organs, the same type in fact, as may be found in mummies embalmed centuries before the Christian era. The fossil horse is the same as the living animal. Siberia was once peopled by elephants. These elephants have disappeared, but their fossil remains present precisely the same physiological characteristics as those of the living elephants. America was once peopled by mastodons. They have disappeared, but they have not left in their places other or different mastodons. The type of man, of the horse, of the elephant, and of every other animal, living or extinct, has remained unaltered by the revolutions and mutations of the globe." . . . "Life commences only once for each new species." . . . "Species remain with unaltered organs, formation, etc., and species disappear, but their peculiar physiological characteristics never reappear in any other animals or beings." . . . "Long life has at all times been the chief desire, the principal object of mankind. How can it be secured? How can the flame be supplied with fuel? These are questions which have always engaged the attention of the deepest thinkers." . . . "In my opinion every person that is not afflicted with organic trouble, or who has not neglected too long the observance of the laws of nature, has within himself the power to prolong his own existence, as well as to improve and to secure his own good health. In life insurance we find that the best risks are not the most robust men, not the athletes, but the men who, without organic trouble or inherited tendencies to disease, are yet obliged to take care of themselves—men who, like Cornaro, etc., xxvii, 3.

Longevity of Actors, xxvii, iii; of Invalids, v, 81; of Italians, xl, 82; of Jews, vii, 520; xxiv, 40; of Long Islanders; xxxviii, 275; of Millers, vii, 374; of Southerners, xi, 646; of Women in Hungary, xxiv, 48; Athleticism and, xlvii, 157; Curiosity in, xxxvi, 464; Early Rising and, xxiv, 314; Household Aids to, xlvi, 289; Comparative, of Men and Women, xv, 412; Influence of Marriage on, xlvi, 292; Observations on, xviii,

420; Philosophy of, xv, 245; Problems of, xxxviii, 95; Remarkable, xi, 313; xv, 435.
Longfellow, A. J., Sanitation and The Communion Table, xxx, 509.
Long-lived Americans, xxiv, 93.
Long-lived Family, A, xxxvi, 247.
Loomis, A. L., Climate Treatment of Phthisis, xv, 38; Evergreen Forests as Therapeutic Agents, xix, 198; Histological Changes Which Take Place in the Lungs in Cured Phthisis, xxvii, 352; Cardiac Dyspnœa, xxxi, 49; Loomis, the Late Dr. A. L., xxxiv, 282; Loomis Memorial Sanitarium, xxxv, 153; xxxvii, 531; xlii, 240; xliii, 33; xliv, 367.
Lord, Hon. H. W., Sanitary Rewards and Punishments, viii, 193.
Loring, E. G., School Hygiene, v, 204.
Loss of Life on Railroads, xxxiii, 476.
Loss of Life and Vessels, xiv, 189.
Loss of Life from Various Causes on Steamboats, vii, 395.
Lotion for Fetid Feet, ii, 302.
Louisiana Fisheries, xlvi, 144.
Louisiana, Inundations of, Effect of on Health, Chaillé, xi, 357; Topography, Climate and Mineral Springs of, Bell, xxxviii, 307.
Louisiana State Board of Health, vii, 319.
Louisiana State Board of Health and Auxiliary Sanitary Association, New Orleans, xi, 66; State Sanitary Association, xli, 72.
Louisiana State Board of Health, and Bad Outlook for Sanitation in New Orleans and the Mississippi Valley, xi, 66, 644; New State Board of Health, xl, 261; Reorganization of the Public Health Service, xli, 326, 370.
Louisville Quarantined, and Why, xxxix, 460.
Love, I. N., Summer Diarrhœa of Children, xli, 138.
Love, W. A., Georgia's Necessity, vii, 469.
Love Portion, xiv, 164.
Low Ceilings in Small Houses, Advantages of, Honeyman, xi, 790.
Low, Clement B., Hygiene of the Teeth, xli, 33.
Low Mortality, iv, 136.
Lowell's Poisonous Water, Harrington, xlv, 56.
Loye, M., Poisoning by Sulphuretted Hydrogen, xvii, 212.
Luciani, The Lasting Character of Soil Pollution, xxxi, 13.
Ludlow, J. R., Sanitary Qualities of Artificial Butter, xix, 306.

Mississippi, xxxix, 536.
Missouri, Climate of, xi, 524; xiv, 374; Climate of, E. D. Jones, xix, 189.
Montana, x, xi, xvii; xxviii, 264.

Magruder, A. C., Sanitation of Dairies, xliv, 397.
Maine, Sanitary Topography and Mineral Springs of, Bell, xxxv, 234.
Maiselis, Immunity Conferred by Attack of Infectious Disease, xxxv, 68.
Maizeline, xxxi, 147.
Maladie du Someil, xl, 527.
Mal de Mer, xxxiv, 182.
Malaria, Near Boston, ix, 57; Far-fetched, xlvii, 362; Prevention of Poison of, von Koppenfel, ix, 309; in Skin Diseases, xi, 61; Sternberg, Woodhull and Smart, on, xi, 801; Van Bibber, xii, 128; of the Tre Fontaine Marshes, Crudeli, xv, 234, xix, 211; in Texas, Taylor, xix, 215; Development of, Herbert, xix, 219; Germ of, The Laveran, Councelman, xix, 444, xxii, 350; Communicated by Drinking Water, Smart, xxii, 427; Wagener, xxix, 137; and the Causes of Fever in the State of N. Y., Bell, xxii, 432; Practical Observations on, Daly, xxxiii, 306; and The Cuban Campaign, Sajous, xl, 17; Malaria or Mosquitoes? Sanborne and Lowe, xliv, 542; Mosquitoes and, xliii, 357; and Mosquitoes, Howard, xlvi, 473; Prof. Koch, on, xlvi, 433; in New York—Efforts for Its Prevention, xlvii, 357.
Malarial Cachexia, Crothers, xxxv, 338.
Malarial Diseases, The Possibility of Preventing, by Quinine, xxi, 567; German Studies of, Mason, xlii, 137.
Malarial Diseases in Putnam Co., N. Y., Bailey, v, 456; Malarial Fever in New Orleans, Devron, iii, 302.
Malarial Heart Disease, vii, 36.
Malarial Parasite, The, xxxvi, 2.
Malarial Problem, The, in the Light of Epidemiology, Davidson, xlii, 498.
Malone, B., Salting for Snow Removal, iv, 101.
Malpractice, xviii, 543.
Malt Extracts as Food, Fothergill, xiv, 334; xxx, 348; xl, 535.
Mammoth Cave, Air of the, xl, 381.
Man, The Age of, Wallace, ii, 112; The Coming, Clevinger, xxviii, 132; The Normal, Huxley, xxiii, 55; Primitive, Benson, xxxv, 95; The Typical, Sargent, xxv, 289; and The Machine, Potter, xxxix, 479; The Lesser, xxxix, 383.
Man of Him, Make a, Jordan, xxxix, 429.
Man Destroys, Nature Economizes, viii, 390.
Man, The, Who Hadn't Time, Kizer, xl, 90.

Man With the Hoe, Markham, xliii, 381.
Management of Communicable Diseases, O. W. Wight, ix, 201.
Management of Slaughterhouses, E. H. Janes, ii, 289, H. C. Lea, 377.
Mania, Acute, De Witt, xxxv, 264.
Manila, Sanitation at, xlii, 449, 548; xliii, 67, 68; xlv, 275.
Mankind's Mistakes, xi, 90.
Manly, T. H., Garbage Disposal, xxxiv, 3.
Mann, E. C., Mental Responsibility, vi, 119, 165.
Manna of the Bible, Castrey, xlii, 155.
Manners, Good, A Quaker's, xix, 19; xliv, 357.
Manning, Maud, "Dust on Your Glasses," vi, 357.
Mansfield, O, xiii, 173.
Manslaughter by Rail, xi, 115.
Manson, Patrick, Wants America to Kill Mosquitoes, xlv, 515.
Manual Training in Germany, Sauter, xlv, 234.
Manure Nuisance, The, and Garbage Removal, E. H. Janes, *et al.*, xviii, 139; xxiv, 76, 265; and Diphtheria, Thresh, xxx, 114; xxxi, 464; Disposal of in New York, xxxiv, 301; Cotton Traps and, xxxv, 78.
Marcy, H. D., Sanitation in Street Pavements, xxxv, 39.
Marcy, H. O., Recent Advances in Sanitary Science, xl, 769; Medical Legislation, xv, 68, 121; Climate Treatment, xvi, 193; The Climate and Sanitary Qualities of Western North Carolina, xxii, 199.
Marchand, J. F., What the World Owes to Vaccination, xlv, 116.
Marchant, M. Gerhard, Rupture of the Kidney, xxxiii, 169.
Margery, xliv, 147.
Marine Hospital Service Bulletin, vii, 330, Report on U. S. S. Plymouth, 232; viii, 284; Cordon, xi, 185, How the Fund is not Expended, 265, and the National Board of Health, 222, Extraordinary Assumption, 281, Official List of Changes of the Medical Officers, 698; Report, xx, 355; The New Law, xxii, 133; Work of, Hamilton, xxiv, 501; xxix, 481; Injustice to the Medical Officers of, xxxi, 466; Report, xxxi, 554; xxxvi, 534; Army and Navy Use of the Service of, xl, 592; Candidates for Admission Into, xli, 377; Report, xliii, 257; Ignored, xlvii, 459.
Maritime Sanitary Service, Stephen Smith, x, 90.
Marston, T. A., Age and Acclimatization of Soldiers in Reference to Service, xix, 257.

INDEX.

A Fu Fax and Figgers, 401.
Air, Give Him; He'll Straight Get Well, Latham, 410.
Alcohol, A Study of the Effects of, on Longevity, French, 206.
Amoy, the Port of, Insalubrity of, 154.
Anderson, A. P., New Method of Cooking Cereals, 222.
Animals, Method of Killing in Paris, 74.
Animals, Pets, and Children's Diseases, 518.
Appearances, Deceptive, 49.
Appel, D. M., Results Obtained in the Treatment of Tuberculosis at Fort Bayard, N. M., 110.
Aquarium, The New York, the Best in the World, 84.
Arizona, Climatic Features of, Burns, 234.
Army, Medical Corps of, the, Sternberg, 119.
Associations Conventions, Etc.:
American Climatological Association, 231; American Congress of Tuberculosis, 56; American Medical Association, 105; American Public Health Association, 431; Life-saving Congress at Nantes, 52; Pan-American Sanitary Congress, 432.

Barbour, P. E., Child Labor, 515.
Bashore, H. B., The Village Church and Churchyards, 229.
Bathing Establishments in Lyons, Covert, 228.
Baths, Public, in New York, 143.
Bayles, J. C., Dangers to Health from Gas-pipe Leaks, 16.
Beer, German, Statistics, 154.
Bell, A. N., Address before American Congress of Tuberculosis, 56; Symposium of Sanitary Science, 89, 185, 277, 373, 465, 561.
Bell, C., Address before American Congress of Tuberculosis, 57.
Benedikt, M., The Tuberculosis Question, 18.
Bergh, Robert S. S., Consul, Milk Powder in Sweden, 552.
Biggs, H. M., Sanitary Measures in New York City for the Prevention of Tuberculosis, 113.
Blumberg, Dr. M., Investigation of Sublimine as a Disinfectant, 526.
Bodies Stolen for Dissecting Purposes, 427.

Bonney, S. G., Consumption Contracted in Colorado, 39; Sanatorium Treatment of Tuberculosis, 110.
Book Reviews:
American Monthly Review of Reviews, 272, 556; American Society for Prevention of Cruelty to Animals, 26th Annual Reports, 175; Century Magazine, 460, 555; Delineator, 272, 557; Diet in Relation to Age and Activity (Thompson), 75; Diseases of Infants and Children (Holt), 365; Disinfection and Disinfectants (Roseman), 456; Emergency Report on Surra (Salmon), 367; Food Factor, The, as a Cause of Health and Disease in Childhood (Winter), 80; General Paresis (Chase), 366; Guide to the Practical Examination of the Urine (Tyson), 456; Hurricanes (Alexander), 270; Massage and the Original Swedish Movements (Ostrum), 269; Medical Book News, 174; Medical Directory of New York, New Jersey and Connecticut, 456; Physicians' Visiting List, 459; Practical Dietetics (Thompson), 77; Principles of Prompt Aid to the Injured (Doty), 173; Proceedings of the Second Convention of Weather Bureau Officials (Moore), 269; Progressive Medicine, 80, 457; Public, The, and the Doctor (Hava), 554; Quiz-Compend of Philosophy (Brubaker), 554; Self-Instructor in Phrenology and Physiology (Fowler), 269; Sewage Works Analyses (Fowler), 268; Smithsonian Institution Report, 552; Spiritism, Hypnotism and Telepathy (Bell), 269; State Medicine in Alabama; 457; Treatment of Tabetic Ataxia (Frenkel), 554; Tuberculosis Test of Imported Cattle (Salmon), 173; Yearbook of U. S. Department of Agriculture, 554.
Breathing, One-sided, 225.
British Kings, The, Real Power, 182.
Brooklyn Water Supply, Refiltration of, Required, 45.
Burke's Benefaction, 142.
Burns, W. G., Climatic Features of Arizona, 234.

Camping Out, The Art of, 83.
Canada, W. W., Pure Food Laws in Mexico, 224.
Canary Islands, The, 464.
Cardiac Diseases, Chloroform in, Huchard, 40.
Carrington, P. M., Experience in the Treatment of Tuberculosis at Fort Stanton, 110.
Carter, H. R., Are Vessels Infected with Yellow Fever? 321.
Cereals, New Method of Cooking, Anderson, 222.

Chapin, C. V., One Way to Fight Contagion, and what School Children should be Taught, 239.
Charity, Bequests for, 143.
Child Labor, P. F. Barbour, 515.
Child Labor Reform by Voluntary Agreement, 368.
Child Swallows a Silver Half-Dollar, 17.
Cholera in Egypt and China, 267.
Cholera in Pekin, 171.
Cholera, Insects and, 363.
Cholera in the Philippines, 73, 171, 266, 361, 454.
Christian Science Characterized, 426.
Church, The Village, and Churchyards, Bashore, 229.
Cloths or Clothes, 499.
Cocoons, Interesting, in Queer Places, 462.
Colorado's Burden, The Problem of, 53.
Commercialism, The Taint of, 369.
Consumption Contracted in Colorado, Bonney, 39.
Consumption, The Warfare Against, A Forward Movement in, 144.
Consumptives, Bill of Fare for, 151.
Consumptives, Good News for, 423.
Consumptives, Mrs. Phipps' Benefaction to Aid, In Colorado, 160.
Consumptives, Sanatoria for, Hall, 405.
Contagion, One Way to Fight, And What School Children Should be Taught, Chapin, 239.
Corbally, T. P., Medical Excerpt, 40, 244, 419.
Cosmopolitan Health Studies, Oswald, 3, 128, 212, 315, 413, 500.
Cough, To Control, Von Ruck, 420.
Covert, J. C., Bathing Establishments in Lyons, 228.
Craig Colony Prize of Two Hundred Dollars, 52.
Cremation, The Progress of, Sir Henry Thompson, 532.
Curiosity Extraordinary, 335.
Curtin, R. G., Influence of Strychnine on the Heart, 232.

Democracy and Manners, 555.
Deserts, Our, Reclaiming, 82.
Digestion, The Position of the Body Favoring, 342.
Dinwiddie, R. R., The Intertransmissibility of Human and Bovine Tuberculosis, 112.
Disasters, A Year of, 48.
Drainage Canal of the Valley of Mexico, Marcy, 107.
Dust, the, Salt Water for, 340.

Eddy, Mrs., and Common Salt, 529.
Education in the Southern States, 463.
Education, Problems in, 370.
Edwards, The, 181.
Egypt, Cholera in, 362.
Elect, A Shelf for the, 558.
Emmert, J. M., State Medicine, 105.
England, J. W., Coffee and Tea as Precipitants for Poisons, 218.
Example, A Good, 530.
Eyes, Diseased, in Schools, 442.

Faits Nouveaux, Gaertner, 247.
Fiction, Summer, 183.
Finot, J., The Chances of Long Life, 10.
Finsen, N. R., The Conflict with Tuberculosis, 136.
Fireproof Timber and Fire Preventives, 155.
Fog and Smoke, 141.
Foie Gras, The Cruelties of, 12.
Food Laws, Pure, in Mexico, Canada, 224.
Foods, Digestive Value of; Danger in the Consumption of Raw Salads, 341.
Foreign Physicians in Peru, 514.
Foundlings, The Training of, 145.
French, J. M., A Study of the Effects of Alcohol upon Longevity, 204.
Fueth, Dr. H., Hand Disinfection, 526.
Fumigation of School Books, 364.

Gas-pipe Leaks, Dangers to Health from, Bayles, 16.
Germ Carrier, a, The House Fly as, 147.
Godliness, Evidence of, Uncleanliness no Longer Regarded as, 342.
Good Example, 530.
Got His Share, 314.
Grape Juice, Action of, on the Organism, 151.

Habit, 499.
Hall, E. T., Sanatoria for Consumptives, 405.
Halsey, F. W., The Nature Movement in Literature, 557.
Hamilton, Alexander, 461.
Hamilton, John, Food Adulteration, 525.
Hand Disinfection, Dr. H. Fueth, 526.

Health of the Army—Surgeon-General's Report, 535.
Health of the City—Mayor Low's Talk, 336.
Health of the Navy—Surgeon-General's Report, 537.
Health, Public, and the Marine Hospital Service of the United States, 116.
Health, Public, the, Goods Injurious to, Right of the State to Prohibit the Importation of, 140.
Health Studies, Cosmopolitan, Oswald, 3, 128, 212, 315, 413.
Health, The Factors of, Mawbey, 289.
Highway Commissioners' Estimate of the Value of Shade Trees, 521.
Hills, the, Over, 371.
Hoffman, F. L., Suicide Record of 1901, 330.
Holton, H. D., Causes and Suggestions for the Prevention of Tuberculosis, 193.
Hygiene in Churches, 154.
Hygiene, School, 294.
Hygiene, Sociology and, Plunkett, 302.

Imbault, F., Frequency of Tuberculosis among Alcoholics, 204.
Immunity, Natural and Artificial, Vaughan, 385.
Inexperienced Young Wife, 530.
Infant Feeding, Artificial, Visanska, 42.
Infant Mortality, 364.
Influenza, Jelliffe, 115.
Insect Repellants, 153.
Insects and Cholera, 363.
Insomnia, 42, 421.
Inspection, Medical, Improved, 442.

Jacques, W. K., Microscopic Aid in the Diagnosis of Scarlet Fever, 108.
Jelliffe, S. E., Influenza, 115.

Kindergarten, the, Value of, Winship, 238.
King Edward and Americans, 181.
Knopf, S. A., Symposium on Tuberculosis, 109.

Latham, A. Give Him Air; He'll Straight Get Well, 410.
Life, Long, The Chances of, Finot, 10.
Light, Curative Properties of, 460.
Locusts and Wild Honey, 226.
Long, John D., The New American Navy, 557.

Louisiana State Board of Health, the, Incidental powers of, 163.

McHatton, H., Is Tuberculosis a Disease of Environment only? 298.
Maltine Company's Prizes Awarded, 429.
Mankind in the Making, Wells, 556.
Marcy, H. K., The Drainage Canal of the Valley of Mexico, 107.
Marcy, H. O., Boards of Health and the Manufacture of Vaccine Virus and Antitoxine, 108.
Marshall, William C., Coffee, 524.
Mawbey, E. G., The Factors of Health, 289.
Meat, Boric Acid in, 50.
Medical Excerpt, Corbally, 40, 244, 419.
Medicine, State, Emmert, 105.
Membranous Complications, Fleming, 421.
Memorybillious Visit to Paris in 1823, Ramsbottom, 273.
Mental Alienation, Treatment of, by Baths, Bonnefous, 244.
Might as Well, 155.
Milk Powder in Sweden, Bergh, 522.
Mortality and Morbidity Statistics and Reviews, 61, 156, 253, 344, 433, 535.
Mortality, Infant, 364.
Mortality, Negro, 364.
Mosquito Culture, Long Island, War on, 148.
Mosquitoes, About, Ross, 13.
Mouse in the Telescope, 223.

Nature Movement in Literature, The, Halsey, 558.
Naval Medical Service Filled, 50.
Navy, The New American, John D. Long, 557.
Navy, the, Review of the Sanitary Condition of, Wise, 97.
Negro Mortality, 364.
Nerve, Cervical Sympathetic, Resection of, Franck, 246.
New York Department of Health, the, Stinting of, for Needful Means for Dealing with Contagious Diseases, 158.

Obituary:
Nelson, W. A., M. D., 55.
Virchow, R. L. C., 344.
Oswald, F. L., Cosmopolitan Health Studies, 3, 128, 212, 315, 413, 500.

Pasteur Institute, Chicago, 429.

Patents, Recent Sanitary, 533.
Pekin, Cholera in, 171.
Peru, Foreign Physicians in, 514.
PERSONAL:
Forwood, W. H., U. S. A., 51.
King, H. B., M. D., 344.
Sternberg, G. M., M. D., U. S. A., 51.
Pet Animals and Children's Diseases, 518.
Philippines, the, Cholera in, 73, 171, 361, 454.
Philippines, the, The Outlook in, 270.
Phillips' Milk of Magnesia, 528.
Phlebo-Sclerosis of Superficial Veins, Sonques, 41.
Physique, Deterioration in, 52.
Pineapple, the, Virtues of, 422.
Ping-Pong, 86..
Plague in London, 455.
Plague, More, in San Francisco, 256.
Plague, the, Persistence of; Status of the San Francisco Board of Health, 63.
Plague in San Francisco and Its Danger to the Country, Resolutions on, 506.
Pneumonia, Epidemicity and Increasing Fatality of, Walsh, 114.
Pneumonia, Wells, 114.
Poisons, Coffee and Tea as Precipitants for, England, 218.
Poisons, Pet, Our Own, 149.
Potato, The, as a Medicine, 43.
Prescription, A, 84.
Prize, Four Hundred Dollar, 429.
Proctor's Theatres, 87, 184, 272, 372, 464, 558.
Ptomaine Poisoning, Rixa, 419.
Putrefactive Processes, 43.

Quarantine Laws, State's Right to Make, 343.
Quarantine Rules in the Gulf States, 163.

Ravenel, M. P., The Unity and Intercommunicability of Human and Bovine Tuberculosis, 412.
Red Shirt, The Therapeutic Properties of, 529.
Retractors of the Tongue, Automatic, Laborde, 246.
Revaccination Is a Necessity, A Company Where, 172.
Rheumatism, Articular, Stewart, 421.
Ross R., About Mosquitoes, 13.

Rowing for Women, 183.

Saccharin, Abrogation of the Use of, 248.
Salmon, D. M., Relation of Human and Bovine Tuberculosis, 111.
Sanatoria for Consumptives, Hall, 405.
San Francisco Board of Health, Status of; Persistence of the Plague, 63.
San Francisco, The Plague in, and Its Dangers to the Country, 506.
Sanitary Bureau, The National, 139.
Sanitary Homes in Germany, 154.
Sanitary Science, Symposium of, Bell, 89, 185, 277, 373, 465, 561.
Sanitation and Politics, Wyman, 106.
Sanitation, The Requirements of, Bracen, 402.
Scarlet Fever, Ecthol in, Turk, 247.
Scarlet Fever, the Diagnosis of, Microscopic Aid in, Jacques, 108.
School Children, Sight and Hearing of, 258.
School Gardens, 271.
School Hygiene, 249.
Schools, Rural, Consolidation of, 370.
Sewerage Experiment, A, The Liernur System, 498.
Sewerage System and Water Supplies, Supervision of, in Minnesota, 355.
Shade Trees, Highway Commissioners' Estimate of the Value of, 521.
Shaw, W. N., Sc.D., Treatment of Smoke: A Sanitary Parallel, 481.
Siberia, Mineral Springs of, 152.
Similies, 88.
Slavery, A New, 252.
Smallpox and Vaccination, Spalding, 114.
Smallpox Exterminated in New York, 255.
Smallpox "Extinction," Cleveland, 358.
Smallpox Increasing in New York, 441.
Smoke, Fog and, 141.
Smoke, The Treatment of, A Sanitary Parallel, Shaw, 481.
Sociology, Hygiene and, Plunkett, 302.
Southwest, the Great, Physical Conditions of, 81.
Spalding, H., Smallpox and Vaccination, 114.
Statistics, Vital, of the United States, 433.
Sternberg, G. M., Banquet to, 119.

Sternberg, G. M., The Army Medical Corps, 119.
Stirpiculture, 147.
Streets, Wide, 371.
Strychnine, Influence of upon the Heart, Curtin, 232.
Stubbert, J. E., Some Practical Hints in the Treatment of Tuberculosis from the Sanatorium Standpoint, 112.
Sublimine, Investigation, as a Disinfectant, M. Bumberg, 526.
Suicide Record of 1901, 330.
Surgeon-General, The New, U. S. Army, 340.

Temperance Crusade, The Twentieth Century World-wide, 559.
Therapeutic Properties of a Red Shirt, 529.
Thermometer Case, An Antiseptic, 43.
Thompson, Sir Henry, The Progress of Cremation, 532.
Tubercle Bacilli in the Nail Dirt of Children, 151.
Tuberculosis a Disease of Environment Only, Is? McHatton, 298.
Tuberculosis, American Congress of, Address of Welcome, Bell, 57.
Tuberculosis, American Congress of, Opening Address, Bell, 56.
Tuberculosis, Experience in the Treatment of, at Fort Stanton, Carrington, 110.
Tuberculosis, Frequency of, Among Alcoholics, Imbault, 204.
Tuberculosis, How, is Communicated, 409.
Tuberculosis, Human and Bovine, Relation of, Salmon, 111.
Tuberculosis, Human and Bovine, The Intertransmissibility of, Dinwiddie, 112.
Tuberculosis, Human and Bovine, The Unity and Intercommunicability of, Ravenel, 412.
Tuberculosis, Prevention of, Recommendation for, 203.
Tuberculosis Question, The, Benedikt, 18.
Tuberculosis, Results Obtained in the Treatment of, at Fort Bayard, N. M., Appel, 110.
Tuberculosis, Sanatorium Treatment of, Bonney, 110.
Tuberculosis, Some Practical Hints in the Treatment of, from the Sanatorium Standpoint, Stubbert, 112.
Tuberculosis, Symposium on, Knopf, 109.
Tuberculosis, The Conflict with, Finsen, 136.
Tuberculosis, the Prevention of, Causes of and Suggestion for, Holton, 193.
Tuberculosis, The Prevention of, Resolution on Measures for, 137.

Tuberculosis, the Prevention of, Sanitary Measures in New York City for, Biggs, 113.
Tuberculous Anti-, Measures in Naples, 154.
Turk, The Unspeakable, 462.
Typhoid Bacillus, the, Life of, 430.
Typhoid Fever in Brooklyn, 256.
Typhoid Fever, Urotropin in, Wilcox, 247.

Urotropin as a Urinary Disinfectant, 171.

Vaccination, A Further Object Lesson in, 47.
Vaccination and Smallpox, Spalding, 114.
Vaccine Virus and Antitoxine, Boards of Health and the Manufacture of, Marcy, 108.
Vaughan, V. C., Immunity, Natural and Artificial, 385.
Vena Cava Inferior, the, Ligature of, Honzel, 246.
Venereal Diseases, 115.
Violence, Physical, Not Necessary to Extreme Cruelty, 343.

Walking as an Exercise, 272.
Walsh, J. J., Epidemicity and Increasing Fatality of Pneumonia, 114.
Water Sterilized, for Troops, 51.
Waters, Mineral, Artificial, Advantages of, 153.
Wells, E. F., Pneumonia, 114.
Wells, H. G., Mankind in the Making, 556.
Wine and Cider, French Harvest of, 531.
Wine Baths, 528.
Winship, A. E., Value of the Kindergarten, 238.
Wise, J. C., Review of the Sanitary Condition of the Navy, 97.
Woman's, Business, Club, 85.
Wounds by the Lebel Bayonet, Buret, 245.
Wyman, W., Sanitation and Politics, 106.

Yellow Fever, Are Vessels Infected with, Carter, 321.

Zoologist, A, for the Public Health and Marine Hospital Service, 343.

1 gal
254+